Volume 152 July-December 1977

NATIONAL GEOGRAPHIC

INDEX

July-December 1977

VOLUME 152

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
WASHINGTON, D. C.

UMI

NATIONAL GEOGRAPHIC SOCIETY

WASHINGTON, D. C.

Organized "for the increase and diffusion of geographic knowledge"

GILBERT HOVEY GROSVENOR
Editor, 1899-1954; President, 1920-1954
Chairman of the Board, 1954-1966

THE NATIONAL GEOGRAPHIC SOCIETY is chartered in Washington, D. C., in accordance with the laws of the United States, as a nonprofit scientific and educational organization for increasing and diffusing geographic knowledge and promoting research and exploration. Since 1890 the Society has supported 1,467 explorations and research projects, adding immeasurably to man's knowledge of earth, sea, and sky. It diffuses this knowledge through its monthly journal, NATIONAL GEOGRAPHIC; supplement maps distributed to members; its books, globes, atlases, filmstrips, and educational films; *National Geographic WORLD*, a magazine for children age 8 and older; information services to press, radio, and television; technical reports; exhibits from around the world in Explorers Hall; and a nationwide series of programs on television.

Articles and photographs of travel, natural history, and expeditions to far places are desired. For material used, generous remuneration is made.

ROBERT E. DOYLE, President
GILBERT M. GROSVENOR, Vice President
OWEN R. ANDERSON, Vice President and Secretary
HILLEARY F. HOSKINSON, Treasurer
WILLIAM T. BELL, FRANK S. DELK,
LEONARD J. GRANT, RAYMOND T. McELLIGOTT, JR.,
C. VERNON SANDERS, EDWIN W. SNIDER
Associate Secretaries

BOARD OF TRUSTEES

MELVIN M. PAYNE, Chairman of the Board
LLOYD H. ELLIOTT, Vice Chairman
President, George Washington University
MELVILLE BELL GROSVENOR, Chairman Emeritus
THOMAS W. McKNEW, Advisory Chairman

FRANK BORMAN, Chairman of the Board and President, Eastern Airlines
J. CARTER BROWN, Director, National Gallery of Art
WARREN E. BURGER
Chief Justice of the United States
ROBERT E. DOYLE, President, National Geographic Society
GEORGE M. ELSEY, President, American National Red Cross
CRAWFORD H. GREENEWALT
Director, E. I. du Pont de Nemours & Company
GILBERT M. GROSVENOR
Editor, National Geographic
ARTHUR B. HANSON, General Counsel, National Geographic Society
CARYL P. HASKINS, Former President, Carnegie Institution of Washington
JEROME H. HOLLAND
Former U. S. Ambassador to Sweden
CARLISLE H. HUMELSINE
President, The Colonial Williamsburg Foundation
MRS. LYNDON B. JOHNSON
CURTIS E. LeMAY, Former Chief of Staff, U. S. Air Force
WM. McCHESNEY MARTIN, JR.
Former Chairman, Board of Governors, Federal Reserve System
LAURANCE S. ROCKEFELLER
President, Rockefeller Brothers Fund
ROBERT C. SEAMANS, JR.
Henry R. Luce Professor of Environment and Public Policy, Massachusetts Institute of Technology
FREDERICK G. VOSBURGH
Former Editor, National Geographic
JAMES H. WAKELIN, JR., Former Assistant Secretary of Commerce for Science and Technology
JAMES E. WEBB, Former Administrator, National Aeronautics and Space Administration
CONRAD L. WIRTH, Former Director, National Park Service

Trustees Emeritus
JUAN T. TRIPPE
ALEXANDER WETMORE
LLOYD B. WILSON
LOUIS B. WRIGHT

COMMITTEE FOR RESEARCH AND EXPLORATION

MELVIN M. PAYNE, Chairman
EDWIN W. SNIDER, Secretary
ALEXANDER WETMORE, Chairman Emeritus

BARRY C. BISHOP, National Geographic Staff, ROBERT E. DOYLE, GILBERT M. GROSVENOR, MELVILLE BELL GROSVENOR, CARYL P. HASKINS, STERLING B. HENDRICKS, Scientist Emeritus, U. S. Department of Agriculture, THOMAS W. McKNEW, BETTY J. MEGGERS, Research Associate-Anthropology, Smithsonian Institution, ROBERT C. SEAMANS, JR., T. DALE STEWART, Physical Anthropologist Emeritus, Smithsonian Institution, GEORGE E. STUART, FREDERICK G. VOSBURGH, JAMES H. WAKELIN, JR., GEORGE E. WATSON, Curator of Birds, Smithsonian Institution, FRANK C. WHITMORE, JR., Research Geologist, U. S. Geological Survey, CONRAD L. WIRTH, LOUIS B. WRIGHT, and PAUL A. ZAHL, Former Senior Scientist, National Geographic Staff

Assistant Secretaries of the Society: JOSEPH B. HOGAN, JAMES P. KELLY, ADRIAN L. LOFTIN, JR., LEWIS P. LOWE, WARD S. PHELPS, CLETIS PRIDE. ***Assistant Treasurer:*** ALFRED J. HAYRE. Assistants to the President: Earl Corliss, Jr., Richard E. Pearson. Administrative: D. Evelyn Carnahan

Secretary's Staff: *Accounting:* Jay H. Givans, William G. McGhee, George E. Newstedt, David H. Peters, Martha Allen Baggett, James M. Swartz. *Administrative:* Ruth E. Clark, Frederick C. Gale, Robert V. Koenig, Joyce S. Sanford, Frank M. Twigger. *Cashier:* Dorothy M. Wagner. *Computer Center:* James G. Schmelzer. *Data Assembly:* Peter F. Woods. *Employee Benefits:* Howard R. Hudson, Mary L. Whitmore. *Explorers Hall:* Peter Purpura (Curator). *Medical:* Thomas L. Hartman, M.D. *Member Relations:* Paul B. Tylor. *Membership Promotion and Statistics:* Charles T. Kneeland (Manager), Thomas M. Kent. *Payroll:* Dorothy L. Dameron. *Personnel:* Robert E. Howell, Glenn G. Pepperman, Shirley N. Wilson. *Printing and Production Control:* Joe M. Barlett, Frank S. Oliverio, Wilhelm R. Saake. *Promotion and Educational Services:* Carl W. Harmon, Jr., Jerome F. Owecke, F. William Rath, Robert J. Warfel, Towne Windom. *Purchasing:* Robert G. Corey, Thomas L. Fletcher, Sheila H. Immel. *Translation:* Zbigniew Jan Lutyk

COPYRIGHT © 1977 National Geographic Society, 17th and M Sts. N.W., Washington, D. C. 20036. All rights reserved. Reproduction of the whole or any part of the contents without written permission is prohibited.

NATIONAL GEOGRAPHIC MAGAZINE

MELVIN M. PAYNE *Chairman of the Board*
ROBERT E. DOYLE *President of the Society*
MELVILLE BELL GROSVENOR *Editor Emeritus*

GILBERT M. GROSVENOR *Editor*
JOHN SCOFIELD *Associate Editor*

Senior Assistant Editors
W. E. Garrett, *Illustrations* Joseph Judge, *Text*
Jules B. Billard, Robert L. Breeden, James Cerruti, Allan C. Fisher, Jr., Samuel W. Matthews, Carolyn Bennett Patterson, Herbert S. Wilburn, Jr.

Assistant Editors: Andrew H. Brown, William Graves, Robert P. Jordan, Edward J. Linehan, Bart McDowell, Merle Severy, Kenneth F. Weaver (Science)

Senior Editorial Staff: Thomas Y. Canby, William S. Ellis, Rowe Findley, Bryan Hodgson, Elizabeth A. Moize, John J. Putman, Gordon Young

Foreign Editorial Staff: Thomas J. Abercrombie, David S. Boyer, Howard La Fay, Volkmar Wentzel, Peter T. White

Editorial Staff: Harvey Arden, Kent Britt, Mike Edwards, Rick Gore, Noel Grove, Alice J. Hall, Werner Janney, David Jeffery, Michael E. Long, John L. McIntosh, Ethel A. Starbird, George E. Stuart (Archeology), Priit J. Vesilind

Art Director: Howard E. Paine; Charles C. Uhl (Asst.), Robert E. Pullman

Research: Ann K. Wendt (Chief); Frances H. Parker (Associate Chief); Carolyn H. Anderson, Susan L. Anderson, Judith Brown, Susan P. Byrnes, Susan Day Fuller, Ann B. Henry, Jan Holderness, Levenia Loder, Jean B. McConville, Carol M. McNamara, Lesley B. Rogers, Frances W. Shaffer, Michaeline A. Sweeney. *Correspondence:* Carolyn F. Clewell, Clifford R. DuBois. *Geographic Information:* Bette Joan Goss

Library: Virginia Carter Hills (Librarian); Patricia Murphy Smith (Assistant Librarian), Carolyn Locke, Louise A. Robinson, Marta Strada

Editorial Administration: Joyce W. McKean, Assistant to the Editor; Virginia H. Finnegan, Lucille L. McInerney, Winifred M. Myers, Shirley Neff, M. Jean Vile (Assistants); Jolene M. Blozis (Indexes); Evelyn Fox, Dolores Kennedy (Travel); Lorie Northrop, Mary Anne McMillen (Records)

ILLUSTRATIONS STAFF: ***Illustrations Editor:*** Thomas R. Smith. *Art Editor:* Andrew Poggenpohl. *Assistant Illustrations Editors:* David L. Arnold, O. Louis Mazzatenta, Charlene Murphy, Robert S. Patton, Elie S. Rogers, W. Allan Royce, Jon Schneeberger, Mary Griswold Smith. *Layout and Production:* H. Edward Kim. *Picture Editor:* Bruce A. McElfresh. Barbara A. Shattuck (Assistant). *Librarian:* L. Fern Dame. *Assistant Librarian:* Carolyn J. Harrison

Geographic Art: William N. Palmstrom (Chief); Walter Q. Crowe, John D. Garst, Jr. (Assistant Chiefs). *Artists:* Lisa Biganzoli, William H. Bond, John W. Lothers, Robert C. Magis, Ned M. Seidler, Lloyd K. Townsend. *Cartographic Artist:* Snejinka Stefanoff. *Map Editor:* John T. Blozis. *Research:* Virginia L. Baza, Dorothy A. Nicholson, Ann Ruhnka. *Production:* Isaac Ortiz (Supervisor); Iskandar Baday, Elie Sabban, Leo B. Zebarth

Engraving and Printing: Dee J. Andella (Chief); William W. Smith (Assistant Chief); John T. Dunn, John R. Metcalfe, James R. Whitney

PHOTOGRAPHIC STAFF: ***Director of Photography:*** Robert E. Gilka. *Assistant Directors:* Dean Conger, Joseph J. Scherschel. *Photographers:* James L. Amos, James P. Blair, Victor R. Boswell, Jr., Bruce Dale, Gordon W. Gahan, Otis Imboden, Emory Kristof, Bianca Lavies, Bates Littlehales, Robert W. Madden, George F. Mobley, Robert S. Oakes, Steve Raymer, Robert F. Sisson (Natural Science), James L. Stanfield. Lilian Davidson (Administration). *Film Review:* Guy W. Starling (Chief). *Photographic Equipment:* John E. Fletcher (Chief)

Photographic Services: Carl M. Shrader (Chief); Milton A. Ford (Associate Chief); Lawrence F. Ludwig (Assistant Chief); Herbert Altemus, Jr., David H. Chisman, Ellwood M. Kohler, Jr., Geoffrey T. McConnell, William S. Petrini, Claude E. Petrone, Joan S. Simms (Assistant)

RELATED EDUCATIONAL SERVICES OF THE SOCIETY

Cartography: William T. Peele (Chief); Richard K. Rogers (Assistant Chief). *Cartographic Staff:* Margery K. Barkdull, Charles F. Case, Ted Dachtera, Richard J. Darley, John F. Dorr, Russel G. Fritz, Charles W. Gotthardt, Jr., Thomas L. Gray, Catherine M. Hart, Donald A. Jaeger, Harry D. Kauhane, Mary Anne McAleer, Charles L. Miller, Robert W. Northrop, John F. Shupe, Charles L. Stern, Douglas A. Strobel, Tibor G. Toth, Thomas A. Wall, Thomas A. Walsh, Charles M. Wilson III

Books: Jules B. Billard (Chief); Thomas B. Allen, Seymour L. Fishbein (Associate Chiefs); Ross Bennett, Charles O. Hyman, Anne Dirkes Kobor, David F. Robinson, Verla Lee Smith

Special Publications and School Services: Robert L. Breeden (Chief); Donald J. Crump (Associate Chief); Philip B. Silcott (Assistant Chief); William L. Allen, Jody Bolt, Ronald Fisher, William R. Gray, Sallie M. Greenwood, Mary Ann Harrell, Suzanne J. Jacobson, Margaret McKelway Johnson, Geraldine Linder, Tee Loftin, Louisa V. Magzanian, Robert Messer, Jennifer C. Urquhart, Ursula Perrin Vosseler, George V. White, Merrill Windsor. *National Geographic WORLD:* Ralph Gray (Editor); Charles H. Sloan (Associate Editor); Ellen Joan Hurst, Patricia F. Robbins, Veronica Smith. *Books for Young Explorers:* Cynthia Ramsay. *Filmstrips:* Jimmie Abercrombie, James B. Caffrey, Margery G. Dunn, Jacqueline Geschickter, Jane R. McCauley, H. Robert Morrison, George Peterson, Judith E. Rinard

News Service: Paul Sampson (Chief); Donald J. Frederick, William J. O'Neill, Robert C. Radcliffe

Television and Educational Films: Dennis B. Kane (Chief); Sidney Platt (Educational Projects); Patricia F. Northrop (Promotion); Carl E. Ziebe, Yeorgos N. Lampathakis, Marjorie M. Moomey (Research). ***Lectures:*** Joanne M. Hess (Chief); Robert G. Fleegal, Mary W. McKinney, Gerald L. Wiley. ***Records:*** John M. Lavery (Chief)

ADVERTISING: *Director:* James L. Till, 1251 Avenue of the Americas, New York 10020. *Regional managers—Eastern:* George W. Kellner, New York. *Midwestern:* Robert R. Henn, Chicago. *San Francisco:* Cecil H. London. *Los Angeles:* Richard H. Lehman. *Detroit:* George E. Moffat. *Canada:* Robert W. Horan, New York. *International:* John F. Grant, New York. *Travel:* Gerald A. Van Splinter, New York. *European Director:* Michel A. Boutin, 90 Ave. des Champs-Elysées 75008, Paris. *Business Manager:* Peter W. Michaels

Contents

Page

JULY 1977

EDITOR'S PAGE 1
RIVERS WILD AND PURE: A PRICELESS LEGACY 2
By Robert E. Doyle
THE FLATHEAD 13
By Douglas H. Chadwick, with photographs by Lowell Georgia
THE SUWANNEE 20
By Jack and Anne Rudloe, with photographs by Jodi Cobb
THE ST. CROIX 30
Article and photographs by David S. Boyer
THE SKAGIT 38
Article and photographs by David S. Boyer
THE RIO GRANDE 46
By Nathaniel T. Kenney, with photographs by Bank Langmore
THE NOATAK 52
By John M. Kauffmann, with photographs by Sam Abell
Double supplement included—*Wild and Scenic Rivers of the United States*
THE RAT, LAPDOG OF THE DEVIL 60
By Thomas Y. Canby, with photographs by James L. Stanfield
TURKEY: CROSS FIRE AT AN ANCIENT CROSSROADS 88
By Robert Paul Jordan, with photographs by Gordon W. Gahan
FERTILITY RITES AND SORCERY IN A NEW GUINEA VILLAGE 124
By Gillian Gillison, with photographs by David Gillison

AUGUST 1977

EDITOR'S PAGE 147
WEST GERMANY: CONTINUING MIRACLE 149
By John J. Putman, with photographs by Robert W. Madden
ON THE TRAIL OF WISCONSIN'S ICE AGE 182
By Anne LaBastille, with photographs by Cary Wolinsky
THE AIR-SAFETY CHALLENGE 209
By Michael E. Long, with photographs by Bruce Dale
PENGUINS AND THEIR NEIGHBORS 237
By Roger Tory Peterson, with photographs by Des and Jen Bartlett
FIVE TIMES TO YAKUTSK 256
Article and photographs by Dean Conger
PURDAH IN INDIA: LIFE BEHIND THE VEIL 270
Article and photographs by Doranne Wilson Jacobson
HOW SOON WILL WE MEASURE IN METRIC? 287
By Kenneth F. Weaver, with drawings by Donald A. Mackay

SEPTEMBER 1977

EDITOR'S PAGE 295
LEONARDO DA VINCI: A MAN FOR ALL AGES 296
By Kenneth MacLeish, with photographs by James L. Amos
CALIFORNIA'S NORTH COAST: REDWOODS, RAIN, AND LOTS OF ROOM 330
By Judith and Neil Morgan, with photographs by Dewitt Jones
NORWAY'S REINDEER LAPPS 364
By Sally Anderson, with photographs by Erik Borg
SALT—THE ESSENCE OF LIFE 381
By Gordon Young, with photographs by Volkmar Wentzel and Georg Gerster
AFRICA'S GENTLE GIANTS (GIRAFFES) 402
By Bristol Foster, with photographs by Bob Campbell and Thomas Nebbia
RESCUING THE ROTHSCHILD 419
By Carolyn Bennett Patterson

UMI

Page

AMBER: GOLDEN WINDOW ON THE PAST 423
A picture story by Paul A. Zahl, with text by Thomas J. O'Neill
NEW NATIONAL GEOGRAPHIC INDEX, 1947-76 436

OCTOBER 1977

EDITOR'S PAGE 439
OASES OF LIFE IN THE COLD ABYSS 441
By John B. Corliss and Robert D. Ballard
THE DANUBE: RIVER OF MANY NATIONS, MANY NAMES 455
By Mike Edwards, with photographs by Winfield Parks
ARIZONA'S SUBURBS OF THE SUN 486
By David Jeffery, with photographs by H. Edward Kim
Map supplement included—*Close-up: U.S.A., Arizona, New Mexico, Utah, and Colorado*
WHERE CAN THE WOLF SURVIVE? 518
By L. David Mech
THE DOMINICAN REPUBLIC: CARIBBEAN COMEBACK 538
By James Cerruti, with photographs by Martin Rogers
GEOTHERMAL ENERGY: THE POWER OF LETTING OFF STEAM 566
By Kenneth F. Weaver
JOURNEYING THROUGH AMERICA'S HISTORYLANDS 580
New Geographic Book—*Visiting Our Past: America's Historylands*

NOVEMBER 1977

EDITOR'S PAGE 583
KAUAI, THE ISLAND THAT'S STILL HAWAII 584
By Ethel A. Starbird, with photographs by Robert W. Madden
SIRED BY VOLCANOES, SHAPED BY RAIN: A KAUAI PORTFOLIO 596
ANCIENT EUROPE IS OLDER THAN WE THOUGHT 615
By Colin Renfrew, with photographs by Adam Woolfitt
THE INUIT OF UMINGMAKTOK: STILL ESKIMO, STILL FREE 624
Article and photographs by Yva Momatiuk and John Eastcott
CUMBERLAND, MY ISLAND FOR A WHILE 649
By John Pennington, with photographs by Jodi Cobb
MONTENEGRO, YUGOSLAVIA'S "BLACK MOUNTAIN" 663
By Bryan Hodgson, with photographs by Linda Bartlett
BRAZIL'S WILD FRONTIER: TREASURE CHEST OR PANDORA'S BOX? ... 684
Article and photographs by Loren McIntyre
NEW READING ADVENTURES FOR CHILDREN 720
The Blue Whale; Creatures of the Night; Let's Go to the Moon; What Happens in the Spring

DECEMBER 1977

EDITOR'S PAGE 723
REACH FOR THE NEW WORLD 724
By Mendel Peterson, with photographs by David L. Arnold and paintings by Richard Schlecht
Double supplement included—*Colonization and Trade in the New World*
WHO DISCOVERED AMERICA? A NEW LOOK AT AN OLD QUESTION 769
—The Editor
THE VOYAGE OF "BRENDAN" 770
By Timothy Severin, with photographs by Cotton Coulson and others
THE YEAR THE WEATHER WENT WILD 799
By Thomas Y. Canby
JAPAN'S AMAZING INLAND SEA 830
By William S. Ellis, with photographs by James L. Stanfield
THE SATIN BOWERBIRD, AUSTRALIA'S FEATHERED PLAYBOY 865
Article and photographs by Philip Green

Index VOLUME 152 JULY-DECEMBER 1977

July	pp.	1-146	October	pp.	439-582
August	pp.	147-294	November	pp.	583-722
September	pp.	295-438	December	pp.	723-872

Titles and illustrations in bold face

A

AEG-Telefunken, Rothenburg ob der Tauber, West Germany: Employees **162-163**
Abalone: Japan 838, 840, 854
Abell, Sam, photographer: ***The Noatak***. July, 52-59
Abraham (patriarch) 99, 108
Acacia tree: Whistling-thorn 408, **408,** 409, 412
Acre: Definition 288
Adams, N.Y.: Winter 1976-77 807
Adana, Turkey 117
Adélie penguins **236-237,** 239, **252,** 254; Name origin 254; Porpoising **248-249**
Adenauer, Konrad 151, 158, 181
"Adoration of the Magi" (Leonardo da Vinci) 311, 312-313
Adriatic Sea: Yugoslavian coast 663, 666, 674, 679, 682
Aegean Sea: Turkish coast **92-93,** 117
Aehlert, Sandra 498
Africa: Plague 63, 86, number of cases (1975) 77, plague areas (map) 77; Rats 63, farmers' war against **80-81**
Africans: New World 728, 761, slaves 724, 727, **730-731,** 755
Africa's Gentle Giants. By Bristol Foster. Sept., 402-417
Ağri (province), Turkey 110; Frontier village **102-103**
Agriculture: Drought, effects of (U.S.) 799, 813, 815, 819, **820, 821,** 824, **824-827,** 826, 828; Geothermal water use **573,** 575, 577; *see also* Farms and farming; Pest control
Air lift: Salvage diving **728**
Air safety: ***The Air-Safety Challenge***. By Michael E. Long. Aug., 209-235
Accidents 209, 213, 214, 217, 218-219, 221, 222, 232; Decline in 213, 214; Simulated 214, 219; Worst 214, **228-229**
Decision Heights 225, 228-229
Landings 209, **210-211,** 213, **216-217,** 224, 228-229, 232; Automated **206-208,** 225, 228, 232, 234, diagram **230-231;** Research 232, **233,** 234
"pilot error" 217-218, 221
Regulations (U.S.) 214, 219, 222, 225, 228
Research **212, 213,** 214, 217, 218, 222, **222, 223, 226-227,** 232, **233,** 234
Simulator training 214, 219
Survival practice **219**
Vertical guidance 224-225, 232
Weather 217, 218; Fog clearance **224;** *see also* Wind shear, *below*
Wind shear 218, 219, 221, 222, 232; Diagram **220**
Air Transport Association of America 232
Aitoak (Eskimo) **636**
Akana (Eskimo) 643
Akana, William "Boy" 605
Akumal, Mexico: Museum collection **732,** 735, **746**
Alakai Swamp, Hawaii **588,** 612
Alamo (fort): Siege reenacted **176**
Alaska: Glacial exploration 196; Winter 1976-77 800, 801, 804, 809, 823; Wolves **519,** 520, 523, **524, 528, 531, 535;** *see also* Noatak River
Albatross Island, Bay of Isles 251
Albatrosses: Antarctic Regions 242, **242-243,** 243, 251; Evolution of 242; Species, number of 251
Albig, Leonhard **163**
Albino animals: Giraffe **405;** Rats 86
Alcoa: Dominican Republic 556
Allan, Tom, III 355
Allen, Durward L. 523
Allen, LeRoy R. 846-847
Alligators 21, 23, 29
Allison, Blake 712
Alps (mountains): Bavaria **174-175**
Alta, Norway **373,** 375, 376, 378
Altamira, Brazil: Homesteaders 716, 718
Alte Wache (bar), Duisburg, West Germany 177
Altman, Rube 25
Aluminum industry: Yugoslavia 667
Alvin (submersible): Galapagos Rift expedition 441, 442, 443, 445, **445,** 446, 449; Model **442**
Alyanak, Ilgaz 99
Amber: ***Golden Window on the Past***. Photos by Paul A. Zahl. Sept., 423-435
Colors 423; "blue" 423, **429**
Decorative uses 423, 424, 425; Jewelry 424, **424,** 425, **425,** 428, 435, making of 429, **429**
Deposits 425, 430, 431; Mining of 425, 428, **428**
Epigram 435
Fluorescence 429, **432**
Gemlike qualities 423, 424, 425, 435
Greek word for 424
History 424-425
Inclusions 423, 425, 427, 429, 434; Air bubbles **426, 430-431, 434-435;** Insects **422-423, 425, 426, 427, 430,** 431, 435; Plants **424, 432, 433, 435**
Medicinal qualities, alleged 424
Origin 423; Legendary 424
Preservation of species 423, 427
Properties: Magical 424; Physical 424, 428
Value: Ancient 424-425; Modern 425, 429
Amboise, France: Chapel **328-329**
Ambrosia Bank, Hispaniola 753, 755
American crocodiles **556-557**
American National Metric Council 294
Amethysts **737**
Amos, James L., photographer: ***Leonardo da Vinci: A Man for All Ages***. Sept., 296-329
Amulets, clay **742-743**
Amundsen, Roald 244
Anatolia (region), Turkey 90, 98, 99, 104; Farms **106-107**
Anatolian Fault, Turkey 115
Anchovies **821**
Ancient Europe Is Older Than We Thought. By Colin Renfrew. Nov., 615-623
Anderson, Sally **373;** ***Norway's Reindeer Lapps***. Sept., 364-379
Andrus, Cecil D. 351
Angelka and Alexsander (Yugoslavs) 475-476
ANGUS (underwater camera system) 443
Animal introduction: Rats 62, 63, 67, 68, 72, 86
Animal studies *see* Giraffes; Rats; Satin bowerbird; Wolves
Ankara, Turkey 88, 91, **96-97;** Capital 90, 97; Population 88, 91; Squatter housing 88, 90; Students 91, **97**
Annapolis, Calif.: Scarecrow **349**
"Annunciation" (Leonardo da Vinci) **310-311,** 313
Another Crossroads for Turkey. By Robert Paul Jordan. July, 88-123
Antakya, Turkey 115
Antarctic Convergence 243
Antarctic Peninsula 254
Antarctic Regions: ***Penguins and Their Neighbors***. By Roger Tory Peterson. Aug., 237-255
Antarctica: Explorers 244, 250, 254; Penguins 239, 254; Salt 386
Anteaters: Brazil **709,** 713
Anticoagulants: Rat poison 63, 82, 84
Antigo plains, Wis. 189, **193, 194**
Antioch (ancient city) 115
Ants: Amber inclusions **430,** 431, 435; Stinging **408**

UMI

Anvers Island, Antarctica 254
Apollo 17: Astronaut on moon **722**
Araki, Takeshi 845-846
Ararat, Mount, Turkey 113, 114-115, **122-123**
Araujo (Brazilian) 684, **684-685**, 688, 691
Arc et Senans, France: Saltworks 398
Arcata, Calif.: Community restoration 354; State college 351, 354; Woman mayor **350**, 351, **351**, 354
Archeology: ***Ancient Europe Is Older Than We Thought.*** By Colin Renfrew. Nov., 615-623; Turkey 104, **114-115**, 117
Archeology, underwater: *Colonization and Trade in the New World* and ***History Salvaged From the Sea.*** Dec. supplement; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
Archibold, George 199, **202**
Arctic Regions: ***Still Eskimo, Still Free: The Inuit of Umingmaktok.*** By Yva Momatiuk and John Eastcott. Nov., 624-647; Wildlife 518
Aripuanã River, Brazil 700, 705
Ariquemes, Brazil: Homesteaders **704-705**, 708
Arizona:
Arizona's Suburbs of the Sun. By David Jeffery. Oct., 486-517
Surprise and Challenge Amid Sere Beauty. Oct. supplement
Agriculture, desert 490, 495, 498, 507, 511; Crops 490, **511**, 512, cover ill.; Effects of urban growth on 495, 497, 500, 512; Irrigation systems 490, 495, 507, 511, pre-Columbian 490, 495, 498
Cactuses 495, 498, 503, **506**
Crime 503, 507
Economy 487, 492, 495, 498, 512; Employment **494**, 512, 517
Future, outlook for 495, 517
History 490-491, 495, 511
Indians: Pre-Columbian 490, 495, 498; Reservation **499**, 507, **509**, 510, 512; Water rights 507, 509, 510
Land development, unsuccessful 505, 512; Community **504-505**; Promoters 512
"life-style" 487, 490, 498, 516
Newcomers 487, **494**, 495, 507, 510, **513**; Reasons for coming to state 487, 490, 495, 498, 512, 514, 515, 516, 517
Pollution 487, 495, 515, 517
Population growth 487, 490, 507, 515, 516
Public lands 498
Retirement communities 510
Water supply 503, 505, 507, 517; Conservation practice **510-511**; Projects to increase 496, 500, 503, 507, **508-509**; Reclamation system **496-497**; Water-table decline 487, 503, 507, 511, 512, resulting land collapse **501**, 512
see also Phoenix *and* Tucson, *outlined*
Arizona Biltmore hotel, Phoenix: Exercise class **492**
Arizona City, Ariz. **504-505**
Arm bracelets: Manillas **725**, 727
Armenians: Turkey 94, 98, 104, massacre of 98
Arno (river), Italy 302, **304-305**
Arnold, David L., photographer: ***Reach for the New World.*** Dec., 724-767
Arnórsson, Stefán 576, 577
Arrowood, Ted and Pearl **198**
Art and artifacts: Eskimo carvings 636, **642-643**; ***History Salvaged From the Sea.*** Dec. supplement; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
Artists: ***Leonardo da Vinci: A Man for All Ages.*** By Kenneth MacLeish. Sept., 296-329
Artondale School, Gig Harbor, Wash.: Trained rats **64**, **65**
Asia: Plague 63, 77, 86; Rats **67**, 68, **73**, 78, control 68-69, **72**, 75, **77**, 79, 81, **87**, worship of **70**, **71**, 75; Wolves 523; *see also* Inland Sea region, Japan; Turkey; *and* Purdah
Asia Minor: Trade routes, ancient 99, 110
Asmus, John **325**
Assis, Francisco de 701, 705
Assyrians 110; Ruins 104
Atatürk ("Father of the Turks") *see* Kemal Atatürk
Atatürk University, Erzurum, Turkey 113
Athens, ancient: New Year 1
Atkinson, Bill 17-18
Atlantic Ocean: Sandspit **658-659**
Atomic bomb, first: Hiroshima, Japan 842, 844, 845, 846, 847
Auction: Slaves **730-731**
Aurelio de Melo, Cicero 716, 718
Austin, Roy 576
Australia's Feathered Playboy (satin bowerbird). By Philip Green. Dec., 865-872
Austria: Danube River region **454**, 455, 461, 464, 465-466; Salt mine **391**, 401
Automobile industry: United States: Metric system conversion 290, 293; West Germany **158-159**, 161-162, 165, 168
Avalak and family (Eskimos) 644, 646
Avccanjavrre, Finnmark, Norway 378
Averi, Ray **513**
Avery Island, La.: Salt mine **388-389**
Aviation: ***The Air-Safety Challenge.*** By Michael E. Long. Aug., 209-235
Aviles, Mary **516**
Azores: Geothermal cooking **572**
Aztecs: Treasure 742

B

Bacteria: Galapagos Rift 443, 447, 449
Baden-Baden, West Germany: Horse race spectators **160-161**
Báez, Buenaventura 538
Bahamas: Ships sunk off 742-744, salvaged items **736-737**, **740**, **741**
Bailey, Jesse 651, 655, **656**, **657**
Bailey, Sally **337**
Balaguer, Joaquín 538, 543, **543**, 545, 552, 553, 557, 558, 561, 564-565; Portrait **542**
Bali (island), Indonesia: Salt worker **400**
The Balkans *see* Montenegro
Ballard, Robert D.: ***Oases of Life in the Cold Abyss.*** Oct., 441-453
Baltic Sea: Amber **422-423**, 423, 425, **425**, 428, 435
Baltimore, Md.: Harbor, ice damage to 806; Rat research 78
Bandicoot, lesser **66-67**, 68, 81
Banks: West Germany **148**, 151, 153-154, 159, 171
Bantle, Alyssa **742-743**
"Baptism of Christ" (Verrocchio) 310; Detail **304**
Bar, Yugoslavia 679
Baraboo, Wis.: Crane refuge 199, **202-203**
Baraboo Range, Wis. 199, **204-205**
Barak, Turkey 104
Barges: Danube River 456, 461, **462**, 464-465, **484-485**, families **463**, 475-476
Barking Sands Pacific Missile Range Facility, Kauai 591-592
Barleycorns: Ancient measure 288
Barnes, Allan M. 86
Barr, Victor 806
Bartlett, Des and Jen, photographers: ***Penguins and Their Neighbors.*** Aug., 237-255
Bartlett, Linda, photographer: ***Montenegro, Yugoslavia's "Black Mountain."*** Nov., 663-683
Baseball: Dominican Republic **552-553**, 557
Bata (Yugoslavian) 474, 475
Baths: Budapest, Hungary 472, **474-475**; Roman 160; Russian 263, **268**
Batko, Aleksander 399
"Battle of Anghiari" (Leonardo da Vinci) 322-323, 325; Sketches for **324**; Unfinished 325, 326
Baugh, Everett 293
Bauxite: Brazil 689, 718; Dominican Republic 542, 556; Yugoslavia 667, 674
Bavaria (state), West Germany **174-175**; Capital *see* Munich; Flag **173**; Kings 172, 175

Bayazit Fire Tower, Istanbul, Turkey 122-123
Bayer company, Leverkusen, West Germany 158, 169, 171; "sniffer" **156**
Bazaar: Istanbul, Turkey 120
Beach, Peter and Susan 193
Beads, barter 724, **726**, 727
Bean, Roy 49
Beaver, giant: Ice Age Wisconsin 199
Beaver trapping: St. Croix Basin 30, 32, 36
Beeby, John 775
Beer: West Germany 165, **166**, 168, **173**, 177
Beer garden: Osaka, Japan **858-859**
Belgrade, Yugoslavia 455, 474-475, 476; Commerce 474, 475
Belgrade-Bar Railroad, Yugoslavia **675**, 679
Bell, Alexander Graham 209; Metric system 290; Quoted 209
Bellemare, François 712
Bellinger, Lester 334
Benci, Ginevra: Portrait **315**
Benjamin, Erich 560
Beppu, Japan **575**; Geothermal energy, use of **574**, 575, **848**, **849**, 856
Berlin, West 179; Club **176-177**; Foreign workers **178-179**
Berlin Wall 179, **180-181**
Bermuda: Shipwrecks off 727, 733, artifacts from 724, **724-727**, **733**, 733-734, **734**
Berti, Antonio **305**
Bhopal (former state), India 284; Royal family 284, 286
Bible, 13th-century: Illustration from **77**
Biehringer, Theres **458**
Big Beaver Valley, Wash. 40; Proposed flooding 40, 41
Big Bend National Park, Texas **46-49**, 49, 51
Big Sulphur Canyon, Calif.: Geothermal power plant **566-567**, 572-573
Billings, Charles 217-218
Birds: Antarctic Regions 239, 242, **242-243**, 243, **244**, 251, **252** *see also* Penguins; Brazil 693, **698-699**; Cumberland Island, Ga. 650, 656; Hawaii **588**, 612; Leonardo da Vinci sketches **309**; Wisconsin 199, **202-203**; *see also* Satin bowerbird
Birds of paradise: Courtship **124-125**, 146
Birjis, Jahan **279**, 286; Daughters **278**, **279**, 286; Son 286
Bizen, Japan: Potter **850-851**
Black-backed gulls **252**
Black-browed albatrosses 242, **242**, 243, 251
Black Death: Death toll 77, 86; Rats carry 63, 67, 77, 86
Black Forest, West Germany: Danube River source 455, 456, 458, traditional **456**; Spa **160-161**
Black Sea: Fishes **463**, 475
Blackwood, Algernon 470, 472
Bliss, John H. 218, **221**
Blood feuds: Turkey 110, 113
"Blood Pond Hell," Beppu, Japan **849**
Blowfish: Japan 851
"The Blue Danube" (Strauss) 457, 465, 466
Blue Hills Felsenmeer (rock formation), Wis. 188, **200-201**
Blue Mosque, Istanbul, Turkey **118**
Blueberries: Noatak Basin **55**
Boat races: Kauai **586-587**
Boats: Catamaran tender **445**; Crab boats **338-339**; Ferries **654**, 856, 862; Ice-sunk **805**, 806; Kayaks **12**, **38-39**; Leather *see Brendan*; Motorboats **334-335**, Eskimos **625**, **630-631**, 636, 643, 644, 647; Rubber **238**, **246**, **247**, 250, 251; *see also* Canoeing; Curraghs
Bob Marshall Wilderness, Mont. 18
Boca Chica, Dominican Republic 553
Bodega Bay, Calif. 336, 355, 357
Bodrum, Turkey: Castle **92-93**
Body decoration: Gimi people 125, 128, **132-136**, 137, **138-139**, 146
Boeing Company: Jetliners **222**, cockpits **212-213**, **233**, crashes 214, 218-219, **228-229**; Test pilot 222, 224
Bojević, Blažo **667**
Boldt, George 45
Bolles, Don: Assassination 503
Bombay, India: Plague-detection program **76**, 81-82; Rats **73**, **76**, 79, 81, protected by religion 70, 72
Bombs: Japan 842, atomic, first 842, 844, 845, 846, 847
Bongo, Anders Aslak 371, 376, 378
Bongo, Anders H. 371, 374, 375-376
Bongo, Mikkel 371, 376
Bongo, Mikkel (child) 374
Bonn, West Germany 177, 179, 181
Books, NGS: Children's series: *The Blue Whale*, *Let's Go to the Moon*, *What Happens in the Spring*, *Creatures of the Night* 720-722; *Journey Across Russia* 256, 258; *Visiting Our Past: America's Historylands* 580-582
Borana (tribespeople): Salt harvest **397**
Borg, Erik, photographer: ***Norway's Reindeer Lapps***. Sept., 364-379
Borgia, Cesare 322; Letter by **303**
Bosch, Juan 564
Bosporus 90, 117, 120
Bottles: Salvaged **744**, **760**, **763**
Bowerbirds, satin: ***The Satin Bowerbird, Australia's Feathered Playboy***. By Philip Green. Dec., 865-872
Bowling Green State University, Ohio: Rat-control research 60, 63, **69**, 75
Bowman Lake, Glacier National Park **14-15**
Boy Scouts: Canoeing **48-49**
Boyer, David S.: ***The St. Croix***. July, 30-37; ***The Skagit***. July, 38-45
Bracelets, arm: Manillas **725**, 727
Bradley, Charles and Nina 197
Brahmans: India 274, 276, 282, **282**, **283**, 286, priest 284
Brandon Creek, Ireland 772, 775
Brandt, Willy **180**
Brasília, Brazil 692-693; Aerial view **690**; Dedication 689, 691, 692; History 692
Brass: Salvaged items **732**, 735, **747**, **754**, **760**, 767
Bratislava, Czechoslovakia 466, **470**; Bridge **476**; Palace interior **471**; World War II monuments 466, **468-469**, **476**
Braun, Fred 189, **194**
Brazil: ***Brazil's Wild Frontier***. By Loren McIntyre. Nov., 684-719
Capital *see* Brasília
Cattle 693, 695, 708, **712-713**; Beef production 695
Communications 693, 708
Diseases 686, 688, 701, 705, 710, 712
Exploration of interior 689, 691, 692, 693
Farms and farming **716-717**; Crops 695, 704, 713, 716, 718; Farmer **702**, 718
Forests 689, 692, **714-715**
Gold 684, 686, 688, 691, 700, 708; Prospectors 684, **684-687**, 688, 691
History 691, 693, 700
Homesteaders 701, **702**, 702-703, **704-705**, 708, 711, 716, 718
Indians **696-697**, 700, 701, 703, 705, 712; Conflicts with homesteaders 700, 701, 705, 708; Diseases 701, 705; Population 700
Map 689
Migration, westward 686, 689, 692, 700, 702-703, 704, 708, 716
Natural resources 689, 708, 718 *see also* Gold, *above*; Timber, *below*
President **691**
Roads 689, **690**, 693, 700-701, 702-703, 706, 708, 710, 711, 713; Construction **688**, 701, 712; Map 689
Rodeo **712-713**
Swamps 693, **694-695**, **698-699**
Timber 689, 692; Farms 713, **714-715**, 716
Wildlife 693, **698-699**, **709**, 713
Bream, sea: Japan **838**, 848, 851
Breg (stream), West Germany 456, 458
Breisach, West Germany: Wine cooperative **167**
Brendan, Saint. Dec., 769-797
Who Discovered America? A New

Look at an Old Question. The Editor. 769
The Voyage of **Brendan.** By Timothy Severin. 770-797
Birthplace 775
Plausibility of Atlantic crossing 769, 771, 772, 775, 790, 797
Sixth-century voyages 769; Departure, point of 775, 780; Duration 769, 787; Experiences **768,** 769, 773; Hazards 776; Route 777, 778
Brendan (leather-hulled sailboat). Dec., 769-797
Who Discovered America? A New Look at an Old Question. The Editor. 769
The Voyage of **Brendan.** By Timothy Severin. 770-797
Bilge pump 787, 789-790, 793
Cabin **783,** 787, **789,** 795
Christening and launching 772, 775, **779**
Construction 775; Flax thread **774,** 775, 790; Framework, ash 772, **774,** 775, **782-783;** Hull, oxhide leather 769, 771, 772-773, **774,** 775, 777, 778, **782-783,** 787, 789, 790, 793, flexibility 773, 775, 782, 790, thickness 773; Lashings **774,** 783; Tanning, oak-bark 774, 775, 782; Tarpaulins 780, **782-783;** Thongs, alum-tanned **774,** 775, 787; Wool grease 774, 777, 782, 787, 790
Departure point 772, 775
Dimensions 772, 777, 782
Distances covered 777, 778, 787
Draft 782
Duration of voyage 787, 790; Wintering over 773, 787
Flags and pennants **779, 797**
Freeboard, low **770-771,** 776, 787
Gunwales, oak 783, 790
Leeboard **781, 782-783**
Navigation 777, 785, 787, 788, 789, **789**
Radio 778, 783, 788, 789, **789,** 790
Rigging, medieval-style 775, 776 *see also* Sails, *below*
Rudder **783**
Sails, square-rigged **770-771,** 775, **782-783,** 788, 789-790, **791, 794,** cover ill.; Practice sails **781,** 783
Seaworthiness 769, 771, 774, 775, 777, 782, 788, 790, 793
Speeds 777, 788, 795
Brigach (stream), West Germany 456, 458
Brighamia plant **589**
Bristlecone pines **615,** 621; Radiocarbon dating corrections 615, 616, 621; Tree-ring history, continuous 616, 621
British Antarctic Survey: Stations 243, 251
British Columbia (province), Canada: Proposed coal mining 18, 19
Brittany, France: Megaliths, age of 616, 617, 621; Salt pans **394**
Brittle star (starfish): Galapagos Rift **444**
Brooch: Amber **425**
Brookfield, Charles 755, 758
Brooks, Joe E. 86
Brooks Range, Alaska 52, 53, 55
Brother Jonathan (side-wheeler): Shipwreck 338, 339
Brotulid: Galapagos Rift **440**
Brugman, Mindy **40**
Bubonic plague 86 *see also* Plague
Buck, Robert N. 225, 228
Budapest, Hungary 455, 457, **467,** 472; Baths, thermal 472, **474-475;** Shop, tourist **473;** World War II monument **469**
Buddhism: Japan 837, 856-857
Budva, Yugoslavia 679
Bueno, Carlos 701
Buffalo, N.Y.: Winter 1976-77 **806,** 806-807, 809
Bulgaria: Danube River region 455, 466, 481, 483; Gold artifacts, world's oldest **621,** 622; Military ceremony 481, **485**
Bullion, gold and silver **737, 738,** 741, 749, 753
Burd, Harry 807, 809
Bureau of Outdoor Recreation (U. S.): River studies 9, 51
Burkas: India 279, **279,** 286
Burke, P. E. 293
Burlap corral: Reindeer **368-369**
Burnash, Robert 814, 821
Bush Romero, Pablo 735; Salvaged items **732, 746**
Butterfly **722**
Byzantine Empire 91, 94, 108, 110

C

C. Brewer and Co., Ltd. 605
Cabaret musician: Istanbul, Turkey **116**
Cabeza de Vaca, Álvar Núñez 693
Cabin Creek, Canada: Proposed mine near 18, 19
Cabo Rojo, Dominican Republic: Mining operation 556
Cabral, Donald J. Reid 546
Cacao: Dominican Republic 541, 542
Cacoal, Brazil 708; Movie theater **706;** Tire repair shop **707**
Cactuses: Arizona 495, **506,** rustling 503, 507
Caesar, Julius 408
Cahow, Adam 182, 188
Calderón Gaztelu, Jesús 232
Calhoun, John B. 78
California: Coastal commission 345; Drought: ***The Year the Weather Went Wild.*** By Thomas Y. Canby. Dec., 799-829; Geothermal energy: Power plant **566-567,** 572-573, research 575-576, 579; Rats 63
California Delta 819; Drought, effects of 819, **820, 821**
California's North Coast: Redwoods, Rain, and Lots of Room. By Judith and Neil Morgan. Sept., 330-363
Communal living 338, 357, 359
Conservation controversies 336, 339, 345, 347, 351, 360
Earthquake (1906) 355, 357
Economy 336, 351, 354, 355, 360; Unemployment rate 351
Fishing **334-335;** Commercial 355, 357, boats **338-339,** fisherwoman **337**
History 330, 336, 351, 354, 357
Indians 330, 336, 342, 343, 351
Lighthouses 330, 338, 339, 342
Lumber industry 343, 347, 351, 354, 355, **358-359;** Logging 330, 339, 343, 347, 354, 359, clear-cutting **360,** effects 347, 360, moratorium, proposed 351
Map 336
Parks and beaches 333, 334, 338, 339, 343, 347, 363; Proposed expansion 347, 360
People 330, 334, 336, 347, 357, 359, 362-363; Attitude toward newcomers 347, 354, 357, 362
Public lands, percentage of 345
Rainfall 334, 336, 343; Floods 342, 343
Ranches and farmland 330, 343, **352-353,** 357
Real estate developers 336, 357, 358
Rivers, flooding 342-343
Stormy seas 338, **338-339,** 339; Seismic sea waves 339, 342; Shipwreck, worst 338, 339
Towns: Planned community 357, home **358;** Restorations **346, 348-349,** 354, 355, 359
Trailers, campers' **334-335**
Calipatria, Calif. 573
Calvert, Edward S. 232
Cambridge Bay (settlement), Canada 644
Camels: Salt caravans **384-385**
Cameras, underwater: ANGUS (camera system) 443; "creature camera" **452,** 453
Campbell, Bob, photographer: ***Africa's Gentle Giants.*** Sept., 402-417
Campbell, Celia 45
Canada: Colonization of 750, 755, 761; Shipwrecks 761, artifacts from **751, 764, 765,** 767; Wolves 518, 523; *see also* Umingmaktok
Canals: Arizona 490, **496;** Dominican Republic 542, 558; Japan **843;** West Germany 456, 461
Canary Islands: Aircraft collision 214, **228-229**
Canby, Thomas Y.: ***The Rat, Lapdog of the Devil.*** July, 60-87; ***The Year the Weather Went Wild.*** Dec., 799-829
Candler, Asa Griggs 649
Candler, Charles Howard 656
Candler, Sam 650, 652
Candlesticks: Salvaged **760,** 767
Cane fields *see* Sugar growing
Cannons: Shipwrecks **724,** 727,

UMI

743-744, **752-753**
Canoe race: Kauai **586-587**
Canoeing: Noatak River **52, 54,** 55, 57, 59; Rio Grande 47, **48-49;** St. Croix River **31,** 32, 33, 35, 36, 37; Suwannee River 21, 25, 27, 28
Cantagalo (gold camp), Pará, Brazil 688, 692; Carnival **686-687,** 688, 691
Cappadocia (region), Turkey 106-107, 110; Church **108**
Caracara, striated: Falkland Islands 239
Carat 287, 288
Caravan routes, ancient: Asia Minor 99, 110
Caravans: Salt 382-383, **384-385**
Carbon-14 dating *see* Radiocarbon dating
Carchemish (ancient city) 104
Card games: Blackjack **640;** Gimi males **146;** *Klaberjas* 165; Sheepshead **191**
Cargo cult: Gimi people 138, 139
Caribbean region: Shipping 727, 744, 747, 749, 758; Shipwrecks 735, 753, 755; Spanish colonies 744, 750, 755, 761; Trade 735, **738-739,** slaves 731; *see also* Dominican Republic; Port Royal, Jamaica
Caribou: Wolf quarry 518, 530
Carillo, Manuel, and family **50-51**
Carnegie, Andrew 649
Carnegie, Lucy Coleman 655-656, 660
Carnegie, Thomas M. 649, 655, 660
Carnival: Cantagalo (gold camp), Pará, Brazil **686-687,** 688, 691
Carp: Japanese streamers 840
Cars: Leonardo da Vinci sketches **300, 301**
Carson, William 355
Carswell, Donn 595
Carter, Jimmy 652, 655
Casa de Campo (resort), Dominican Republic 553; Golf course **562;** Villas **563**
Casa Grande, Ariz.: Collapsed land near **501,** 512
Cascade Range, U. S. 39, **40**
Casey, Eammon 775
Cassiodorus (Roman statesman): Salt 384
Cassowary: Gimi dance and myth **135,** 145-146
Castles: Austria **454,** 465; Bavaria **174;** Bodrum, Turkey **92-93;** Milan, Italy **319**
Cattle: Blizzard casualties (U. S.) 824; Brazil 693, 695, 708, **712-713;** Dominican Republic 546, 549, 553, 560, **560-561,** 563; Drought losses (U. S.) 799, 815, 824
Cattle ranching: Kauai 611
Cavagnaro, David: Quoted 9
Çavuşin, Turkey: Church near **108**
Cecchi, Pete 359
Cellini, Benvenuto: Quoted 325; Saltcellar 381, **386**
Celsius (°C) 289, 291, **294;** Conversion table 292
Celts: Salt mines 391, 401, tools **391**
Censorship: U.S.S.R. **256-257,** 258, 269
Center for Disease Control, Atlanta, Ga.: Rat-control programs, urban 78
Centigrade *see* Celsius
Central Arizona Project (CAP) 503, 507, **508-509,** 509, 510
Central Asia, Soviet, U.S.S.R. **256-257,** 263
Cerro Prieto power plant, Mexico 566, 573
Cerruti, James: ***The Dominican Republic: Caribbean Comeback.*** Oct., 538-565
Cetinje, Yugoslavia 663, 673, 682; Wedding party **672-673**
Chadwick, Douglas H. **12, 16;** ***The Flathead.*** July, 13-19
Chains, gold 735, **736-737,** 741
Chandler, Alvin M. **452**
Char: Eskimo food fish **624-625,** 634, **636, 637**
Charger (platter), gilded **740**
Charleston, Charles **331**
Chase, Joseph 823
Château of Cloux, Amboise, France 328, **328-329**
Chaturvedi, G. C. 75
Chemosynthesis: Galapagos Rift 443
Chesapeake Bay, and estuaries: Freeze, 1977 **802-805,** 806
Chess figures: Eskimo art 636, **642-643**
Chess game **474-475**
Chevette: Metric 293
Chicago River, Ill.: Winter 1976-77 **812**
Children's books, NGS 720-722
Chile: Geothermal resources **578-579**
Chimney sweeps: Bratislava, Czechoslovakia **470**
Chimpanzees: Retirement community: Arizona 510
China: Exports to New World 735, **744, 757,** 767
Chinese: Hawaii 590, 596, 605
Chinese Wall (limestone cliff), Mont. 13
Ching, Anthony 512
Chinstrap penguins 239, 254
Chippewa Lobe, Wisconsin Ice Sheet 188
Chippewa Moraine, Wis. 188
Chocolate: New World 741; "frother" **762**
Christians, Wilhelm **150**
Christmas Creek, Cumberland Island, Ga. 651, 658
Church, first: Legendary site 115
Churches: Bavaria **175;** Masi, Norway **372;** Rock-carved: Turkey 106, 107, **108**
Čičov, Czechoslovakia 468-470
Cigars: Dominican Republic 557-558, **564-565**
Cintas Largas (Indians) 701; Diving helmet trophy **697,** 701; Tribes 701, 705, 708
cirit (sport) **95**
City planning: Leonardo da Vinci 302, 320
Ciudad Trujillo *see* Santo Domingo
Civilization: Diffusion theory 615, 617, 619; Independent-invention theory 617, 619, 621, 622
Clambake I (Galapagos Rift oasis) 444, **446-448,** 450, **452-453;** Model **442**
Clambake II (dead Galapagos Rift oasis) **451**
Clams: Galapagos Rift 443, **443, 452-453,** dead **451**
Clark, Kenneth: Quoted 311, 312
Clark, Rudy 39
Clarke, C. H. D. 536
Claros, Maximino 584, 589
Clay artifacts **736, 742-743, 765** *see also* Pottery
Clear-cutting: California **360,** erosion threat 347, 360; Skagit Basin **43,** 45
Clewell, Andre **26**
Climatology: ***The Year the Weather Went Wild.*** By Thomas Y. Canby. Dec., 799-829
Cline, David 55
Cline, Eric 55, 59
Cluff, Sophie Judd 609
Clusone, Italy: Flying machine over **308**
Coal: Flathead River 18, 19, **19**
Coal mining: West Germany **170-171,** 171
Cobb, Jodi, photographer: ***Cumberland, My Island for a While.*** Nov., 649-661; ***The Suwannee.*** July, 20-29
Cockcrow (gold camp), Pará, Brazil 688, 692; Carnival **686-687,** 688, 691
Codex Atlanticus 301
Coffee: Brazil 704, 708; Dominican Republic 542, 546, 549, 550, 552; History 741
Coffeehouses: Europe 741; Turkey 91, **105,** 110
Coins, old 727, **737, 738,** 741, **752**
Coke plant: Duisburg, West Germany **156-157**
Coleman, Joyce 495, 498
Coleman, Sam 495
Collective farm: Hungary 472
Cologne, West Germany: Coal mine near **170-171;** Gestapo headquarters 151
Colombia: Artifacts from **736**
Colonial America: *Colonization and Trade in the New World.* Dec. supplement; Handicrafts **580, 581B;** ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767; *Visiting Our Past: America's Historylands* (new NGS book) 580-582
Colorado: Blizzard (March 10, 1977) 824; Drought 813, **826-827,** dust storms 813, **824-825;** ***Surprise and Challenge Amid Sere Beauty.*** Oct. supplement

Colorado River, U. S.-Mexico: Central Arizona Project 503, 507, **508-509,** 510; Drought 817, 826
Colson, John L., Sr. (Jake) **24, 25,** 29; Family **24-25,** 29
Columbia River, U. S.-Canada: Drought 813, 814, 817, 826; Fisheries 814
Columbus, Bartolomé 555
Columbus, Christopher 428, 542, 544, 727, 728; Tomb, alleged 553, 555
Combs: Salvaged **764**
Comeback in the Caribbean—the Dominican Republic. By James Cerruti. Oct., 538-565
Communism: Yugoslavia 667, Partisans 666, 670, 673, 682
Concorde (SST): Air-safety features 217; Demonstration against **216;** Landing **216-217**
Condottiere: Leonardo da Vinci sketch **312**
Cones and cone dwellers: Cappadocia, Turkey 106-107, 110
Conger, Dean **256, 268;** ***Five Times to Yakutsk.*** Aug., 256-269
Conrad, Clarence 487, 490
Conrad, Darwin 487
Conservation: ***On the Trail of Wisconsin's Ice Age.*** By Anne LaBastille. Aug., 182-205; *see also* Rivers, U. S.
Construction workers: Yakutsk, U.S.S.R. **264**
Cook, Capt. James 72, 592, 598
Cooking, geothermal **572, 574**
Cooperative farms: Czechoslovakia 468-470; Romania 481
Copp, Nancy 660
Copper artifacts: Manillas **725;** Tools, ancient **620,** 621
Copper Creek, Wash.: Proposed dam 41
Cordillera Central (mountains), Dominican Republic 552, 561
Cordillera Septentrional (mountains), Dominican Republic 549
Corliss, John B. **443;** ***Oases of Life in the Cold Abyss.*** Oct., 441-453
Corncribs: Yugoslavia **677**
Cortés, Hernán 742
Corumbá, Brazil 693
Coulson, Cotton, photographer: ***The Voyage of* Brendan.** Dec., 770-797
Countryman, Richard 503
Covaliov, Serghei 483
Covaliov, Mr. and Mrs. Simeon **482,** 483
Cox, Harry 727; Salvaged items **725, 726, 727,** 735
Crab fishermen: California 355, boats in squall **338-339**
Crabs: Galapagos Rift **440-441, 446, 447,** 449, **449**
Craighead, John J.: Quoted 6
Cranberries: Wisconsin 189, 194, wild 189, **194**
Crane, Glenn 510
Crane fly: Amber inclusion **425**
Cranes: Wisconsin 199, **202-203,** 204
"creature camera" **452,** 453
Crescent City, Calif.: Conservation controversy 347, 351; Seismic sea wave (1964) 339, 342, protection against 339
Crete (island), Greece: Tombs, ancient 617
Crittenden, Eve and A. B. (Abe) 357
Crnojevića (river), Yugoslavia **668-669**
Crocodiles, American **556-557**
Croggon family tannery, Cornwall, England 775
The Crooked House, Ulm, West Germany **458, 459**
Cross Fire at an Ancient Crossroads (Turkey). By Robert Paul Jordan. July, 88-123
Crosses: Salvaged jewelry **732, 733,** 735
Crosshaven, Ireland 772, 775, **779**
Crucifixes, brass **732,** 735
Cruises and voyages: ***Penguins and Their Neighbors.*** By Roger Tory Peterson. Aug., 237-255; *see also Brendan*
Cruzeiro do Sul, Brazil 700
Crystals: Salt **380,** electron micrographs **398-399**
Cubits: Royal 287-288
Cuiabá, Brazil 700
Cultural Plaza, Santo Domingo, Dominican Republic 552
Cumberland Island, Ga.: ***Cumberland, My Island for a While.*** By John Pennington. Nov., 649-661
Area 649
Beach, length of 650
Dangers 649, 661
Ecology 652, 655, 656, 659
Fishing 651, 652, 655, **656**
History 649, 652, 655, 656
Houses **648,** 650, **651, 653,** 656, 657; Plantations **654-655,** 655, 660
Indians 649, 652
Isolation 649, 650, 661
Land ownership: Private 649, 650, 659, 660; Public 649-650, 660
Map 650
Marshes 650, **656-657**
National seashore 649, 652, 661
Population 649, 650
Road 656
Sand dunes 649, 650, 652, **660-661,** 661
Visitors 650, 651, 652, **654,** 655
Wilderness preservation 652, 660-661
Cummins, Kenneth W. 4
Cups: New World artifacts **736, 758, 759**
Curraghs: Ireland 769, 776, 782; *see also Brendan*
Cydnus (river), Turkey 117
Cyprus: Turkish military intervention 90, 91, 94
Czechoslovakia: Danube River region 455, 461, 466, 470, cooperative farm 468-470

D

DC-8 (jetcraft): Landing 218
DC-10 (jetcraft): Crash 232
Dacay, Cecilio **606**
Daimler-Benz plant, near Stuttgart, West Germany 168
Dairy farming: Wisconsin **191,** 193
Dale, Bruce, photographer: ***The Air-Safety Challenge.*** Aug., 209-235
Dallas/Fort Worth Airport, Texas: Passenger lounge **235**
Dalley, Kip 53, 57, 59
Dallman, John 199
Dalokay, Vedat 88, 90
Dams: Dominican Republic 545, 558, 565; Milton, Mass. 2; Missouri River 2; Paraná River, Brazil 693; Skagit River 40, 41, 42, 45, proposed 41; Yugoslavia 666, 675, 676
Danakil Depression, Ethiopia: Salt deposits **382-383**
Dancers and dancing: Gimi people 128, 129, 132, **132-135;** India 279, **283**
Dancing school: Vienna, Austria **464-465**
Danilo I, Bishop-Prince (Montenegro) 682
The Danube: River of Many Nations, Many Names. By Mike Edwards. Oct., 455-485
Aerial views **454, 467**
Barge families 461, **463,** 475-476
Barges 461, **462, 463,** 464, **484-485;** Cargo 461, 463, 464, 474, 475, 483, tonnage 461
Basin 458; Map 457
Bridges 463, **467,** 476, **476**
Canal (under construction) 456, 461
Commerce 458, 461, 463, 464, 474, 483
Dams 464, 476
Delta 483-484; Channel **484-485**
Fishes 466, 475, 483
Fishing (industry) 466, 475, 481, 484
History 455, 476
Length 455, 484
Maps 456-457
Mouth 455, 456, 483
Name variations 458
Navigational rights 461
Political divisions 455, 458, 461, 466
Pollution 455, 457, 466, 475
Ports, number of principal 461
Source 455, 456, 458; Traditional **456**
Tributaries **459,** 463
Danube Basin: Tools, ancient **620,** 621
Danube Delta, Romania 483-484
Dasher (car): Assembly plant **158-159**
Dating methods: ***Ancient Europe Is***

Older Than We Thought. By Colin Renfrew. Nov., 615-623
Davis, David E. 78
Davis, Jack D. 514, 517
Dayton, Ohio: Winter 1976-77 809
Deer **815;** Cumberland Island, Ga. 650, 652, 656
Deer's tongue (plant) 25
De la Renta, Oscar **563**
Delaware: Swedish colony 728
Delftware mug **758**
Demonstrations: Eureka, Calif. **360-361;** Tucson, Ariz. 517; Washington, D. C. **216**
Denmark: Rat-free-premises law 82; Virgin Islands 728
Deobhankar, P. B. 79, 81
Deserts *see* Sonoran Desert
Deshnoke, India: Hindu temple **70, 71**
Detroit, Mich.: Salt mine 387
Deutsche Bundesbank, Frankfurt, West Germany 153-154
Devils Lake, Wis. **204-205;** Formation of 199, 204-205
Dhom, Robert **150**
Dickson, Robert R. 823
Dikes: near Humboldt Bay, Calif. **352-353**
Diseases: Brazilian Indians 697, 701, 705; Rat-carried 60, 63, 67, 77, 81, 84, 86
Divers, abalone: Japan 838, 840
Divers and diving *see* Salvage
Dividers (navigation aid) **747**
Diving helmet: Cinta Larga Indian trophy **697,** 701
Dobri Do (valley), Yugoslavia **664-665,** 676, 679
Dobrsko Selo, Yugoslavia: Farming **671**
Dockworkers: Hamburg, West Germany 162, 165-166
Dogs: German shepherd 182, 188, **197,** 199, 204; Hybrids: Coydogs 807, wolf-dogs 529, 536; Lapland **369,** 371, 376, 378; Sled 636, 639; Wolf, descendant of 518, 520
Dominican Republic:
  Amber **424,** 425, **426, 427,** 428-429, **430-433,** 435, **435**
  Dominican Republic: Caribbean Comeback. By James Cerruti. Oct., 538-565
  Capital *see* Santo Domingo
  Cattle ranching 546, 549, 553, 560, **560-561,** 563
  Character of people 546; Optimism 544, 545, 556, 565
  Constitutions, number of 545
  Economy 538, 541, 542, 545, 564
  Education: Schools 544, 545, 550, 552, 556, 557, 558, 565, overcrowding 552, 558
  Facts and figures 542
  Farming 540-541, 548; Crops 541, 542, 557, 561, 564, coffee 542, 546, 549, 550, 552, sugar 541, 542, 545, 546, 548, **548-549,** 553, 556, 561, 563, tobacco 541, 542, 557-558, **564-565**
  Fishing **547;** Fish 546, **550-551,** 553
  Flag **542**
  Food and drink 546, **546,** 550, **550-551,** 552, 558, 560, 564; Restaurants 553
  Health care 544, 552, 556
  History 538, 542, 544-545, 552-553, 555, 564; Independence 545
  Housing **543,** 545, 552, 556, 560
  Illiteracy 545; Rate 558
  Income, per capita 545
  Indians 544-545, 556, 564
  Industry 557-558, **564-565;** Government-owned 545, 556
  Language 538, 542, 544, 545
  Map 542
  Mining 553, 556-557; Amber 561; Gold 542, 553, 555, 556
  Mountains **540-541,** 544, 549, 552, 561, 564
  Natural resources 538, 557
  Political stability 538
  Population 542, 552; Growth rate 543, 545, 550, 552; Racial percentages 545, 548, 555
  Poverty 544, 546, 555, 556, 564
  Power and water shortages 545, 546, 558, 565; Irrigation: Canal dedication **543,** need for 546, 558
  Presidents: Past 538, 546, 552-553, 556, 564; Present *see* Balaguer, Joaquín
  Press 545, 546, 558
  Racial inequality 545, 548, 555
  Religion 542, 552
  Slavery 544-545, 556
  Sports: Baseball **552-553,** 557; Golf **562**
  Tourism 542, 551, 553, 558, 563
  Unemployment 545, 557
  United States: Aid from 538, 542, 545; Business interests 553, 556, 563; Relations with 538, 544, 564
Shipwreck off 735
Donaueschingen, West Germany **456,** 458
D'Onofrio, Tom **342**
Dornan, John 251
Dossi, Jaggu 75
Douglas, Stephen A. **580**
Doyle, Robert E.: ***Rivers Wild and Pure: A Priceless Legacy.*** July, 2-11
Dragon table, rosewood **342**
Dragonfly: St. Croix Basin **37**
Drake, Sir Francis 555
Drefs, Len and Karyl 498
Driggs, Gary 495
Drinkwater, Herb, family **491**
Drobeta-Turnu Severin, Romania 476, 481
Drought: United States: ***The Year the Weather Went Wild.*** By Thomas Y. Canby. Dec., 799-829
  Agriculture: Costs and losses 799, 813, 815, 819, **820, 821,** 824, **824-827,** 826, 828
  Federal emergency drought list 808
  Fish runs, interrupted 814, **821,** 826
  Hydroelectric-power cutback 814, 826, 828
  Industry, effect on 814, 826
  Livestock 799, 815, 826
  Maps 808
  1930's drought, compared to 808, 813, 814
  Rains, unbeneficial 822, 828
  Social effect 826
  Sunspot-cycle synchronization 823
  Water conservation and sharing 799, 814, 815, 819, 821, 828
  Water levels, lowering 808, 809, 813-815, 817, **818, 819,** 821, 826, 828; Subsidence 815
  Winter precipitation, subnormal 801, 808, 809, 813, 814, **817,** 819; Conditions causing 800, 801, 804, 809, 823, diagrams **800, 801;** Map 808
Drummond, David C. 82, 84
Dry Creek, Alaska: Archeological digs 147
Duarte, Juan Pablo 542, 545, 564
Duarte, Pico (mountain), Dominican Republic 564; Height 544
Duescher, Lynden 214
Duisburg, West Germany: Factories **152-153, 156-157,** 171, 172, 177
Dulles International Airport, Washington, D. C.: Concorde (SST), demonstration against **216**
Dungeness (mansion), Cumberland Island, Ga. 655; Ruins **654-655,** 656
Duppa, Darrel 495
Dupree, Elwood "Randy" 78-79
Durmitor (peak), Yugoslavia 666, 674, 676; Range **664-665**
Dürnstein, Austria 465
D'Urville, Dumont 254
Dusan, Nonin 676
Dust storms: Great Plains 813, **824-825;** Phoenix, Ariz. **514-515**
Dutch West India Company 744
Dutra, Luiz 693
Dyott, George M. 700

E

Earth: Heat, interior 566, 570, diagrams **568, 569**
Earthenware: Water jug **761**
Earthquakes: Alaska (1964) 339; Port Royal, Jamaica (1692) 755, 756-757, 758, 759, 761; San Francisco (1906) 355, 357; Turkey 115

East (region), U. S.: ***The Year the Weather Went Wild.*** By Thomas Y. Canby. Dec., 799-829
East Germany *see* German Democratic Republic
Eastcott, John: ***Still Eskimo, Still Free: The Inuit of Umingmaktok.*** Nov., 624-647
Eastern Airlines: Accidents 218-219, 221, diagram **220;** Survival practice **219**
Eavis, Leslie K. 790
Eberhart, William 218
Edwards, Mike: ***The Danube: River of Many Nations, Many Names.*** Oct., 455-485
Eel: Japanese food **840-841,** 854
Eel River, Calif. 342; Floods 343
Egyptians, ancient: Measures **287,** 288
Eiseley, Loren 649
Elbe River, Europe **164-165,** 180
Elbrus, Mount, U.S.S.R. 269
Electricity *see* Geothermal energy; Hydroelectric power
Eleele, Kauai: Sugar camp near **610-611**
Elephant seals: Antarctic Regions 244, **245,** 251
Elliott, William Bell 572
Ellis, William S.: ***Japan's Amazing Inland Sea.*** Dec., 830-863
El Tatio steam field, Chile **578-579**
Emdin, Henry 556
Emeralds **733, 737;** Brazil 718
Emlen, John T., Jr. 78
Emminger, Otmar 154
Emperor penguins 239; Size 250
Endangered species: American crocodile **556-557;** Hawaii **588, 589,** 612; Whooping crane 202; *see also* Rothschild's giraffe; Wolves
Energy: ***Geothermal Energy: The Power of Letting Off Steam.*** By Kenneth F. Weaver. Oct., 566-579
Energy Research and Development Administration: Geothermal research 570, 572, 575-576, 579
England: ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
Eniwetok Atoll: Nuclear-bomb testing 60, rats, survival of 60, 63
Ennis, Lake, Wis. 196
Enriquillo, Lake, Dominican Republic: Crocodiles **556-557**
Ephesus (ancient city), Asia Minor 114, 117; Ruins **114-115**
Epigrams (Martial): Quoted 435
Erhard, Ludwig 177-178, 181
Erie, Lake, U. S.-Canada: Snow generation 807
Erie, Pa.: Winter 1976-77 **815**
Erie Canal, N.Y.: Salt trade 387, 388
Erigpactsă (Indians): Chief **696-697**
Eriksen, Edel Hetta 378-379
Escola, Nannie **347,** 362-363
Eskers: Wisconsin **201,** 203, diagram **185,** formation of 185, 193, 201
Eskimos: Noatak Basin 52, 57, **58,** 59; Salt source 381; ***Still Eskimo, Still Free: The Inuit of Umingmaktok.*** By Yva Momatiuk and John Eastcott. Nov., 624-647
Art work 627, 636, **642-643**
Children; child rearing 628, **634,** 639, 642
Diet 629, 633, 634, 636, 639, 642; Mealtime, irregular 636
Education 644
The elderly 636
Entertainment 639, **640, 641;** Storytelling 636; *see also* Visiting, *below*
Etiquette 624, 643; Arrival and departure, abruptness of 624, 628, 633, 635, 636, 639; No-question-and-no-answer custom 633, 634-635, 642-643, 644, 647
Folk song 627, 633, 634, 639, 646
Food caching 629, 642
Food sharing 636, 643, 644
Food shortages 633, 639, 644, 646
Future of 646-647
Greeting custom, old 624
Hospitality 624, 628, 636, 643, 644
Housing 628, 632, **641;** Hunting-and-fishing camps 632, 633, 636, **637,** 639, 644, **645;** Igloos 635; Interior, house **640**
Hunting-and-fishing people 625, 646
Income, sources of 627, 636, 642, 644, 646; Earnings 627, 643
Journeying **630-631,** 635, 639, 642; Provisions **630,** 635
Land claims 647
Language 636, 644
Name, ethnic: Eskimo 633; Inuit 625, 633
Population 625
Summertime activities 629, **634-635,** 639, 644, **645**
Supplies: Mail ordering 644; Store 628, 629, 632, 633; Yearly supply ship 629, 633, 640
Temperament; character 624, 628, 632, 633, 636, 639, 642, 643, 644
Tools and weapons, handcrafted 627, 632, 633, 639
Traditions, passing 624, 633, 635, 636, 643, 646
Transport: Dogs 636, 639; Motor boats **625, 630-631,** 636, 643, 644, 647; Sleds 624, **629,** 633, 635, 636; Snowmobiles 624, 628, **629,** 633, 635, 636, 639, 642
Visiting 631, 633, 634, 635, 636, 639, 643, 644
Weather hazards 639, 642
Welfare, refusal of 644, 646
Espaillat M., Victor 557-558
Esperanza (research station), Antarctic Peninsula 259
Estrella, Angel 550
Estrella, César 549-550
Estrella, Dolores **546,** 550
Estrella, Rosario 550, 552
Ethiopia: Geothermal resources: Infrared image **579;** Salt: Disks 384, market **385,** ponds **394,** sources **382-383, 396, 397**
Ethnology *see* Eskimos; Gimi people; Lapps; Purdah
Etokana (Eskimo) 633, 634, 635, 636, 639
Eureka, Calif.: Community restoration 355; History 354; Population 334; Protest, park-expansion **360-361;** Pulp mill stacks 354, **362, 363**
Europe: ***Ancient Europe Is Older Than We Thought.*** By Colin Renfrew. Nov., 615-623; ***The Danube: River of Many Nations, Many Names.*** By Mike Edwards. Oct., 455-485; Rats 62, 63, 82, **83,** 86, control of 62, 82, 84; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767; Wolves 523, 536; *see also* Germany, Federal Republic of; Lapland; Montenegro (republic); Yugoslavia; Turkey
Ewer, silver **741**
Exorcist: India **277**
Explorers, discoverers, and navigators: ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767; *see also* Brendan, Saint
Exuma Cays, Bahamas: Shipwreck 742-744
Eyüp (Muslim holy man): Mausoleum 122

F

Faeroe Islands: *Brendan*'s voyage 773; 777-778, 791; Meaning of name 777
Fairless, Alexandra **350,** 351, **351,** 354
Falconbridge Dominicana Company, Dominican Republic 556
Falkland Islands: Albatrosses 242; Penguin oil industry 239; Penguins 237, 239, 242
Fall, Michael 68
Farms and farming: Danube River region, Europe 468-470, 472, 473, 481; Drought (U. S.) 799, 815, 819, **820, 821,** 824, 826, 828, dust-bowl conditions 813, **824-827;** Skagit Basin 40, 41, **43;** West Germany **710;** *see also* Arizona; Brazil; Dominican Republic; Kauai; Turkey; Wisconsin
Fathom 287; Viking 288
Fawcett, Percy H. 691-692, 700
Fayal, Herman **347**
Fayette County, Pa.: Winter 1976-77 807
Feather-duster worms: Galapagos Rift **449**
Federal Aviation Administration:

Air-safety regulations 214, 218, 219, 222, 225, 228; Wind-shear program 221, 222
Federal District, Brazil: Population 691, 692; Problems 691, 692-693
Federation of German Trade Unions: Düsseldorf, West Germany 159
Fence, electric: Rat deterrent **84-85**
Ferguson, C. W. 621
Ferguson, Lucy **652,** 660-661; Granddaughter **653;** Portrait **653**
Fern Grotto, Kauai **606-607**
Ferndale, Calif. 343, **348-349**
Ferryboats: Cumberland Island, Ga. 650, **654;** Japan 856, 862
Fertility rites: ***Fertility Rites and Sorcery in a New Guinea Village.*** By Gillian Gillison. July, 124-146; India 274, **280-281**
Festivals: India 274, 279; Japan 855, **860;** West Germany **172-173, 460-461, 463;** Wisconsin **192;** Yugoslavia 670, 672-673
Figurines: Ancient **614;** Chinese **757;** Clay **742-743;** Gold **736**
File maker **306;** Sketch **307**
Filipinos: Hawaii 584, **590,** 596
Fire ceremony, Hindu 282, 284
Fish: Antifreeze protein 254; Black Sea **463,** 475; Brazil 693, 700; Danube River 466, 475, 483; Flathead River 18; Galapagos Rift **440, 448, 449, 452-453;** Japan **838, 847,** 848, 851, 854; Noatak River 54, 59; Raw-fish dishes 589, **840-841,** 862; Skagit River 39, 45; Suwannee River 21, 23, 28, 29
Fish drying: Eskimos **637**
Fish runs: Low-level rivers and 814, 821, 826, fingerlings stranded 814, **821,** Operation Fish Flow 826
Fisher, Mel 735
Fishermen: Danube River 466, 474-475, **482,** 483; Dominican Republic **547;** Hawaii 584, 589, 605; Japan **830,** 834, **838,** 840, **847,** 860, 862
Fishermen's Bastion, Budapest, Hungary 457, **477**
Fishing: ***Still Eskimo, Still Free: The Inuit of Umingmaktok.*** By Yva Momatiuk and John Eastcott. Nov., 624-647
Fishing (industry): California's north coast **337,** 351, 355, 357, boats **338-339;** Danube River 466, 475; Suwannee, Fla. **24, 25,** 29
Fishing (sport): California's north coast **334-335,** 351; Noatak Basin 59; Skagit River 39, **44,** 45; Suwannee River **22,** 25
Fishing rights: Indians of North America 39, 45
Five Times to Yakutsk. By Dean Conger. Aug., 256-269
Flathead National Forest, Mont. 19
Flathead River: Mont.: ***Our Wild and Scenic Rivers: The Flathead.*** By Douglas H. Chadwick. July, 13-19
Flax thread: *Brendan* **774,** 775, 790
Fleas: Bubonic plague host **77,** 86
Flies: Amber inclusions **425, 426,** 431
Flight Safety Foundation, Arlington, Va. 213, 222
Flight Training Center, Denver, Colo. 214
Flintlock weapons **750-751,** 767
Flood control: United States rivers 2, 11, 40, 41
Floods: Skagit River 42, 1975 41; United States (1977) 822, 828, Kansas City, Mo. **822**
Florence, Italy **304-305;** History 323, 325; Leonardo da Vinci 302, 304, 307, 310-311, 312-313, 321, 322-323, 325-326
Florida: Shipwrecks 735, 755, 758, 761, artifacts from **742-745, 747, 750-751, 754, 762, 764;** Winter 1976-77 **798,** 804, 809, 810-811; *see also* Suwannee River
Flutes, bamboo: Gimi people 137, **144-145**
Flying machines **308;** Leonardo da Vinci sketches **309**
Flynn, Andy 347, 351
Folk songs: Umingmaktok Eskimos 627, 633, 634, 639, 646
Following the Reindeer With Norway's Lapps. By Sally Anderson. Sept., 364-379
Foot (unit of measure) 287, 288; Conversion table 292
Ford, Gerald R. 290
Ford Motor Co.: Metric system 293
Fork: Salvaged **740**
Forsmark, Margaret 807
Fort Bragg, Calif.: Redwood lumber air-drying yard **358-359**
Fort McDowell Indian Reservation, Ariz.: Dam controversy 507, 509, 510
Fort McHenry, Baltimore, Md.: Bombardment (reenactment) **581B**
Fossils: Amber inclusions: Insects **422-423, 425, 426, 427, 430,** plants **424, 432, 433, 435;** Ice Age mammals 199
Foster, Anna 408
Foster, Bristol **411;** ***Africa's Gentle Giants.*** Sept., 402-417
Foster, Stephen 20, 23; Song 20,; manuscript **22**
Fountain Lake Farm, near Portage, Wis. 193, 196
Fox, red: Noatak Basin **56**
Foxworth, Thomas G. 234
France: Dominican Republic, rule of 542; Megaliths 616, 617, 621; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767; Salt 398, pans **394,** tax 384
Francis I, King (France) 328-329
Frank Lloyd Wright Foundation 495; Winter home **502**
Frankfurt am Main, West Germany **148-149,** 151-152, 179, 180
Franks, Henry 338
French National Convention (1975): Metric system 288
Frescoes: Yugoslavian monasteries 675-676, 678
Fritts, Harold C. 823
Fritz, Jo and Paul 510
Fujita, T. Theodore 219, 221, 222
Fujiwara, Kei **851;** Works **850**
Fukumoto, Hisao **847**
Fukuzawa, Junji 854-855, **860, 861**
Fulmars **792;** Food 778, 793
Fumaroles: Energy source 566, **566-567,** 570, 572, 573, 576
FUNAI *see* National Foundation for the Indian (Brazil)
Fur seals, southern **245**
Furlong 287, 288
Furrer, Bruce **39**
Füssen, West Germany: Countryside near **174-175**

G

Gage, Thomas 738
Gahan, Gordon W., photographer: ***Turkey: Cross Fire at an Ancient Crossroads.*** July, 88-123
Galapagos Hydrothermal Expedition *see* Galapagos Rift
Galapagos penguins 239
Galapagos Rift: ***Oases of Life in the Cold Abyss.*** By John B. Corliss and Robert D. Ballard. Oct., 441-453
Bacteria 443, 447, 449
Chain of life 443, 445
Depth 441
Elements found 442, 443, 447, 450
Fauna, unidentified 441, **450**
Founder principle 449
Giantism 443
Hydrogen sulfide 443, 450
Hydrothermal vents 441, 442, 443, **446-447,** 449
Lava formations: Pahoehoe **449;** Pillows 444, **444-445**
Oases 441, 442, 444, **446-449, 452-453**
Pressure 444
Temperatures 441, 447
Galleons: ***History Salvaged From the Sea.*** Dec. supplement; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
Gallerani, Cecilia: Portrait **314,** 317
Gallon 287, 288, 293, 294
Gan Gaur (Hindu goddess) 282
Ganeshpura, India: Grain storage **72**
García, Aleixo 691
Garden of Eden (Galapagos Rift oasis) 449
Gardiner, John: Tennis ranch, near Phoenix **486-487**
Gaspé Peninsula, Canada: *Machault* sunk off 750, 767
Geisel, Ernesto **691**
Gellért Hill, Budapest, Hungary

472; World War II monument **469**
General Motors: Metric system 293
Gentoo penguins **239, 245,** 254
Geology: ***Geothermal Energy: The Power of Letting Off Steam.*** By Kenneth F. Weaver. Oct., 566-579; ***On the Trail of Wisconsin's Ice Age.*** By Anne LaBastille. Aug., 182-205
George, Saint: Glass intaglio **727**
Georgia, Lowell, photographer: ***The Flathead.*** July, 13-19
Georgia *see* Cumberland Island; Suwannee River
Georgia-Pacific Corporation lumberyard, Fort Bragg, Calif. **358-359**
Geothermal Energy: The Power of Letting Off Steam. By Kenneth F. Weaver. Oct., 566-579
Coal energy, compared with 570
Cooking **572, 574**
Economics of development 569, 570, 572, 576, 577, 578
Energy needs, contribution to total 568, 572, 579
Environmental problems; solutions 566, 578-579
Exploration and development 568, 570, 572-573, 575-576, 577, 578, 579
Geothermal systems 570, 573, 576, 577; Cutaway drawings **568, 569**
Heating 569, 570, 573, 575, 576, 577; Clean heating 576; Cost (Iceland) 576
Map, world-resources 568-569
Nonelectric uses 569, **570-574,** 575, 577; Map 568-569; *see also* Heating, *above*
Origin 568, 570
Pollution problems 566, 572, 578-579
Power plants: Existing 566, **566-567,** 572-573, 575, first 569; Potential wattage 568, 572, nuclear output, compared to 568; Prospective plants 576, 577, 579
Resources, earth's 570; Crustal heat 570
Vents, hydrothermal: Caldera 576; Cutaway paintings **568;** Fumaroles 566, **566-567,** 570, 572-573, 576, **578-579;** Geysers 570, 573; Hot springs 570, **570-571,** 573, 575, 576, 577; Man-made *see* Wells, *below*
Water, disposal of runoff 573, 577, 578, 579
Wells 568, 569, 572-573, 576, 577, 578, 579
German Democratic Republic 179, 180
Germany, Federal Republic of: Danube River, and region 455, **456,** 458, **459,** 461, **462, 463;** Rat control 62, 82; ***West Germany: Continuing Miracle.*** By John J. Putman. Aug., 149-181
Capital *see* Bonn
Chancellors: First 151, 158, 181; Former 177-178, **180,** 181; Present **180**
Character of people: Industry 151; Love of life 166, 168, 172; Pride 151
Economy 155; Banks and banking **148,** 151, 153-154, 159, 171; Growth 151, 178, 181, problems 178-179; Inflation 151, 154, 158; Recession 151, 158, 161, 162, 165; "social market" system 177-178; Unemployment 151, 165, 178
Facts and figures 155
Farming **170**
Flag **155**
Foreign policy 179, 180
History 155; World War II 149, 151, 154, 155, 169
Industry 151, 158, 168-169, 171, 179; Automobile **158-159,** 161-162, 165, 168; Chemical 169, 171, worker **156;** Steel **152-153, 156-157,** 171-172
Labor: Foreign workers 152, 162, 177, **178-179,** number of 152, 179; *Mitbestimmung* 161, 162, 163, 172; Strikes: Policy 161, 165, rate, low 158-159, 162, 163; Unions 159, 161, 162, **162-163,** 172; Workers: Salary, average 161, 165, stock option 172, 177, vacations, average 168
Map 155
Mining: Coal **170-171,** 171; Land reclamation **170**
Political parties 178, 179, 180
Recreation **160-161, 168-169**
Taxes 178; Church 165
Trade 151, 155, 168, 180; Shipping **164-165**
Gerster, Georg, photographer: ***Salt—The Essence of Life.*** Sept., 381-401
Gévaudan, France: Wolf attacks, alleged (1764-1767) 536
Geysers: Energy source 570, 573
The Geysers steam field, Calif.: Geothermal power plant **566-567,** 572-573
Gibbons, Euell: Quoted 651
Gig Harbor, Wash.: Elementary-school rat circus **64-65**
Gila River, Ariz.: Irrigation, pre-Columbian 490
Gila River Indian Reservation, Ariz.: Children **499**
Gillison, David **127;** photographer: ***Fertility Rites and Sorcery in a New Guinea Village.*** July, 124-146
Gillison, Gillian **126;** ***Fertility Rites and Sorcery in a New Guinea Village.*** July, 124-146
Gillison, Samantha **127,** 128, **133, 146**
Gilman, Donald L. 821, 823
Gimi people: ***Fertility Rites and Sorcery in a New Guinea Village.*** By Gillian Gillison. July, 124-146
Body decoration 125, 128, **132-136,** 137, **138, 139,** 146
Ceremonial dress **133-136, 138**
Children **126-127,** 128, **132-133,** 137; Play 128
Cultivation 128, 145
Dancing 128; Interpretive 129, **132-135**
The dead: Ancestor spirits 138-139; Beliefs about 124, 125, 128, 137-139, 143; Pig spirits 132, 137
Displays 124, 125, 128, **139,** 146
Divination, trial by **142, 143,** 145
Fertility, concern for 126, 128, 129, 131, 132, 137, 145, 146
Foods 128, **130,** 132, 137, **143**
Houses **129, 130;** Men's 128, 137; Women's 128, 129, 132
Illness and death, believed cause of 140, 141, 143, 145
Initiation, male 132, 137, 145, 146
Labor, division of 128, 139
Male-female antagonism 128, 129, 135, 137, 145, 146
Marriage and premarriage rituals 128-129, 132, **132-135,** 137, **138-139**
Men: Big Men 128, 137, 139, **140,** 141; Elders **131, 142-145;** Gambling problem 146; Masculinity symbols 124, 125
Music: Clicking sticks **132-133;** Flute, bamboo 137, **144-145;** Singing; songs 129, 132, 145
Myths 132, 145-146
Outside contacts 125, 128; Cargo cult 138, 139; Employment 146
Pigs 128, 129, **130,** 139, 141; Pig kill 132
Political structure 139, 141
Ritual theater 126, 128, 129, 132, 135
Social structure 128, 135, 137, 139, 145, 146
Sorcery: Outlawed 140; Rites **140,** 141; Trials 126, **140-143,** 141, 145
Tools and weapons 128, 132, 145
Villages 125, 128, 129, 140; Layout 128
Women 126, 128, 129, 131, 132, **135, 136,** 137, **138,** 145-146; Mother-male child relation 137, ritual **136**
Gingerbread Mansion, Ferndale, Calif. **348-349**
Gingerich, Michael 390
Gioconda, Lisa del: Portrait **315,** 323, 325-326
Giocondo, Francesco del 323
Giraffes: ***Africa's Gentle Giants.*** By Bristol Foster. Sept., 402-417
Albino **405**
Ancestors **404;** Origin 404; Range: Map 404
Blood pressure 409; Control of 409, 411
Browsing **402-403,** 404, **411**
Cropping 412, 416
Defenses 405, 409, 412, 414, **415**

Endurance, limited 409
Evolution **404**; Adaptations 409, 416
Food **408**, 409, 412; Salt lick 409, **410**
Gentleness 405, 414
Gestation period 412
Gracefulness 405, 407, 409
Hair patterns 403, 404, 405; Camouflage theory 405; "neckprints" 405, **411**
Heat tolerance 404, 409
Height: Average 404, 409; Record 409
Herds **406-407**, 408, 409
Horns 405, 412, **417**
Life-span 405
Locomotion 403
Neck 405; Vertebrae, number of 404, 409
"necking" 412, **416-417**
Population 416
Predators 409, 412, 414, **414, 415**
Range 414, 416; Map 404
Scientific name 404, 409, 416; Origin 408-409
Speed 405, 407, 409
Stance: Splay-legged 409, **410**, 414
Subspecies 414; Differentiation 404; Number of 404
Tongues 408; Length 408
Weight 409
Young **413**; Birth 412, **414**; Care of 412, 413; Defense of 409, 412, **415**; Growth rate 405, 412; Mortality rate 412
See also Rothschild's giraffe
Glaciation: ***On the Trail of Wisconsin's Ice Age***. By Anne LaBastille. Aug., 182-205
Glacier Bay, Alaska 196
Glacier National Park, Mont. 13, **14-15**, 17, 18
Glass: Salvaged 724, **726, 727, 758-759, 763**, 767
Glennon, Paddy 775
Glenwood Springs, Colo.: Thermal bathing pool **571**
Godinje, Yugoslavia 682; Villagers **662, 683**
Gojko, Curic 474
Gold: Brazil 684, 686, 688, 691, 700, 708, prospectors 684, **684-687**, 688, 691, 700, 718; Bullion and coins **737, 738**, 741; Chains 735, **736-737**, 741; Dominican Republic 542, 553, 555, 556; West German reserves 153
Gold artifacts: Indian masterpieces **736**, 742; Oldest known **621**, 622; Saltcellar 381, **386**; Salvaged **733**, **736-737**, **746**, 753, 754, 761, plated silver **740, 766**
Golden Horn, Istanbul **118-119**
Golden Window on the Past. Photos by Paul A. Zahl. Sept., 423-435
Golf: Dominican Republic **562**; Kauai **594-595**
Golubovci, Yugoslavia: Haying **670**
Goo, Wendell 589
Grain (unit of weight) 287; Barley-corn 288; Wheat 288
Grand Canyon of the Noatak, Alaska 59
Grande Ronde River, Wash. **6-7**
Grant, Ulysses S. 354, 538
Grapes: Izmir, Turkey **113**; Yugoslavia 670, wine making 682, **683**; *see also* Vineyards
Grasshopper, prehistoric: Amber inclusion **422-423**
Gray, John and Karen 15
Gray-headed albatrosses 251
Gray wolf: ***Where Can the Wolf Survive?*** By L. David Mech. Oct., 518-537
Great Britain: Rats 82, **83**, poison-resistant 82, 84; Strikes 158; Unions 161; *see also* England
Great Lakes, U. S.–Canada: Formation of 204; Winter 1976-77 807, 811, **813**
Great Lakes region, U. S.–Canada *see* St. Croix River
Great Plains, U. S.: Drought 799, 809, 813, **824-827**, 826, rain relief 808, 826
Great Rift Valley: Ethiopia: Infrared image **579**
Greeks, ancient 94, 114; New Year 1; Salt 386
Green, Betty 351
Green, John 343
Green, Philip **867**; ***The Satin Bowerbird, Australia's Feathered Playboy***. Dec., 865-872
Greene, Nathanael 655
Greenland: *Brendan* sailed past 778, 787, 788
Greenland Sea: Gales 787
Greinburg (barge) 461, 464, 465
Grenadier (fish): Galapagos Rift **448**
Greyfield Inn, Cumberland Island, Ga. **651**, 656; Ferguson portrait **653**; Postboxes 648
Greyhound Corporation: Phoenix, Ariz. 498
Gromme, Owen 199
Grove Farm, Lihue, Kauai 608-609
Gruber, Heinrich 464
Grünewald, Herbert 171
Grytviken, South Georgia Island 243, 244
Gulf + Western Industries: Dominican Republic 553, 563, resort 553, **562, 563**
Gulf Coast: Geothermal resources 569, 577, exploration 568
Gulls: Black-backed **252**
Gurabito de Yaroa, Dominican Republic 549, 550, 552
Gusinje, Yugoslavia 682; Villagers **676, 677**
Guth, Wilfried **150**
Guthrie, R. Dale 147
Gypsies: Cacoal, Brazil **706**

H

Habets, Lou 612
Hadley, Larry 234
Hagia Sofia, Istanbul **119**
Haina, Dominican Republic: Power plant explosion 546; Sugar mill 545, 546
Haines, Robert 799
Haiti: Dominican Republic, rule of 542, 544, 545
Haitians: Dominican Republic 545, 546, **549**
Hakungak (Eskimo) 639, 643
Halim, Ahmet 476, 481
Hallstatt, Austria: Salt mine **391**, 401
Hamburg, West Germany 162, 165-166, 168, 179, 180; Port 162, **164-165**; Trade 164-165, 168
Hamelin, Germany: Pied Piper 82, engraving **62**; Ratcatcher **62**, 82
Hamilton, Stanton "Duffy" 807
Hamilton Sound, Newfoundland: *Brendan* landing 790, **796-797**
Hammer, Armand 325
Hammond, Gail **648**
Hanalei, and area, Kauai 589, 590, **590-591**, **594-595**, 605
Hanapepe, Kauai **593**, 596
Handicrafts: Colonial America **580, 581B**
Hansen, Rolf 772, 776, 777
Haraguchi, Mrs. William **591**
Harpooning practice: *Brendan* **791**
Harran, Turkey 99-100; Houses 99, 100, **108-109**
Harrington, Fred 342
Harris, Kenton L. 75
Havan (Hindu fire ceremony): India 282, 284
Hawaii: Mongoose 74-75, 612; Rats: Crop damage 72, 74; *see also* Kauai
Hayakawa, Norio 848
Haying: Yugoslavia **670, 671**
Haystacks: Turkey **106-107**
Hayward, Wis.: Logrolling **32**
Head, Al 20
Head-Up Display (HUD) **233**, 234
Heating, geothermal 569, 570, 573, 575, 576, 577
Herbert, Jay 589
Hercegnovi, Yugoslavia: Art and artists **678**, 679, 682
Herrera, Rafael 558
Hetta, Mikkel J. 364, 368
Heyn, Pieter Pieterszoon 744, **748-749**, 755
Hibiscus, St. Johnianus **588**
High Point (estate), Cumberland Island, Ga. 650, 652, 655, 656; Owner 650, 652
Highbourn Cay, Bahamas: Shipwreck 742-744
Hill, Tim 40
Hinchman, Clint 742
Hindus: Rat worship 70, 75, temple **70**, **71**; *see also* Purdah, *outlined*
Hiroshima, Japan **844-845**, 845-847
Hiroshima Bay, Japan 838, **863**
Hispaniola (island), West Indies: Shipwreck off 753, 755; *see also* Dominican Republic
History, naval: *Colonization and Trade in the New World* and

UMI

History Salvaged From the Sea. Dec. supplement; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
History, U. S. *see* Colonial America
Hitachi Zosen shipyard, Inno Shima (island), Japan: Workers **835**
Hittite Empire 91, 94, 104
Ho, Harry and Rebecca 605
Hodgson, Bryan: ***Montenegro, Yugoslavia's "Black Mountain."*** Nov., 663-683
Hoeppner, Robert 189
Hoffa, Dennis 32
Hogcamp Branch, Va. **10**
Hohokam Indians: Irrigation system 490, 495, 498
Holi (spring festival): India 279
Holland, Herb 612
Holothurian: Galapagos Rift **448**
Honeydew, Calif. 334, 336
Hong Kong: Market, open-air **215**
Honshu (island), Japan 830, 834, 842, **843-845**, 845-847, 848, **856-859**, 862
Hope Bay, Canada **634**
Horicon Marsh, Wis. 203
Horses: Cumberland Island, Ga. 656, **657**; Kelheim, West Germany **460-461**; Orick, Calif. **356**; Rio Grande **47**; Turkey **95, 102-103, 122-123**
Horsetails (plants) **186**
Hot, Amir **677**
Hot springs: Colorado **571**; Iceland 576, 577; Utah **570-571**, 576
Hothouses, geothermal: Iceland **573**, 577
Houk, Vernon 78
How Soon Will We Measure in Metric? By Kenneth F. Weaver. Aug., 287-294
Hulme, Kathryn 612
Humboldt Bay, Calif.: Dikes near **352-353**
Humboldt Scientific City, Brazil 701
Humboldt State College, Arcata, Calif. 351, 354
Hungary: Danube River region 455, 470 *see also* Budapest
Hunter, Ralph 342
Hunting: ***Still Eskimo, Still Free: The Inuit of Umingmaktok.*** By Yva Momatiuk and John Eastcott. Nov., 624-647
Hutchinson, Kans.: Warehouse, world's largest 390
Hveragerdi, Iceland: Geothermal heating 577
Hydraulic model: Inland Sea, Japan **846-847**, 848
Hydroelectric power: Brazil 693; California 816; Columbia River 814, 817, 826; Skagit River 40, 41; Yugoslavia 666, 667, 676
Hydronautics, Inc., Laurel, Md.: Air-safety research **223**

I

Ice, winter: Waterways **802-805**, 806, 807, 811, **812, 813**, floes **802-803, 813**
Ice Age mammals: Wisconsin **185**, 199
Ice Age National Scientific Reserve: Wisconsin 188, 189, 205
Ice Age Trail, Wis.: ***On the Trail of Wisconsin's Ice Age.*** By Anne LaBastille. Aug., 182-205
Ice fishing: U.S.S.R. 263
Ice Sheet, Wisconsin *see* Ice Age Trail
Iceland: *Brendan* stopover 773, 775, 777, 778, 784, 787; Geothermal resources 576-577, heating 569, 573, 576, 577
Ichetucknee River, Fla.: "tubing" **28-29**
Igikpak, Mount, Alaska 55
Iguaçu Falls, Brazil 708; Discovery 693
Illustrated manuscript, medieval **768**
Imperial Valley, Calif.: Geothermal exploration and development 573, 575-576, 579
Inai, Fujio 840
Incas: Wealth 738
Inch 287, 288; Conversion table 292
The Incredible Rat. By Thomas Y. Canby. July, 60-87
Index, cumulative, NG 436-438
India: Rats **70, 73**, control **72**, 75, **77**, 79, 81, worship of **70, 71**, 75; *see also* Purdah
Indian jewelry **494**
Indiana: Winter 1976-77 804, 809
Indians of North America: Arizona **499, 509**, pre-Columbian 490, 495, 498, reservations **499**, 507, 510, 512, water-rights problems 507, 509, 510; California 330, 336, 342, 343, 351, fishing rights 351; Georgia 649, 652; St. Croix River, Minn.-Wis. **31**, 36-37; Washington **44**, fishing rights 39, 45
Indians of South America: Brazil **696-697**, 700, 701, 703, 705, 708, 712
Indians of the Caribbean: Dominican Republic 544-545, 556, 564
Indians of the New World: Colonial period 728, 731, 735, artifacts **736**, 741, 742, **742-743**, wealth obtained by Europeans 733, 735, 738, 742, 767
Industrial Exposition Hall, Hiroshima **844**, 845, 846
Industrial Free Zone, Santiago, Dominican Republic 557-558, **564-565**
Initiation rites: Gimi males 132, 137, 145, 146
Inland Sea region, Japan: ***Japan's Amazing Inland Sea.*** By William S. Ellis. Dec., 830-863
Fish and fishermen **830**, 834, **838**, 840, **840-841**, 842, **847**, 848, 851, 854, 862
Food 834, 838, **840-841**, 848, 851, 857, 862
Geology 848, 854
History 837, 854, 857 *see also* World War II: Japan
Hydraulic model **846-847**, 848
Industry **832-833**, 834, 840, 842, 848, 862
Map 836-837
Medical problems 846-847, **852, 853**, 855
Museums 847, 857
Pollution 834, 847, 848
Religion 831, 837, 855, 856-857, **860**; Shrine entrance **863**
Transportation 831, 840, 842, 856, 862
Workers **835**, 842, 854, **858-859**
Inno Shima (island), Japan: Shipyard workers **835**
Insects: Amber inclusions **422-423, 425-427, 430**, 431, 435
Instrument Landing System (ILS) 225, 228; Diagram **230-231**
Intaglio, glass **727**
International Bureau of Weights and Measures 290
International Crane Foundation, Baraboo, Wis. 199, **203-204**
International Decade of Ocean Exploration: Galapagos Rift expedition 443
International Salt Company: Salt mines 387, **388-389**
Interstate Park, Wis.-Minn. 182, 188
The Inuit of Umingmaktok: Still Eskimo, Still Free. By Yva Momatiuk and John Eastcott. Nov., 624-647
Iran: Salt source **395**
Ireland: *Brendan* departs from 772, 775, 776, **779**, 780; Monks, seafaring 728 *see also* Brendan, Saint; Tomb, ancient **619**
Iron: Salvaged 735, 743, 750, **751**
Iron Gate Dam, Romania 476, 481
Irrigation: Arizona 490, 495, 498, 507, 511, water-conservation technique **510-511**; California 573, 814, 815, 816, 819, **828**, drought effects on 814, 815, 817, **818**, 819, **819**, 821, 826, 828
Irving, Washington: Quoted 11
Isabela, Dominican Republic 544
Isakov, Isliam Redjelov 483
Iskenderun, Turkey 115
Islam *see* Muslims
The Island That's Still Hawaii: Kauai. By Ethel A. Starbird. Nov., 584-613
Isle Royale National Park, Mich.: Wolves 523, 525, 530
Isles, Bay of, South Georgia Island: Wildlife 250-251
Ismarth de Araujo Oliveira 700
Istanbul, Turkey 90, 117; Aerial view **118-119**; Covered Bazaar 120; Fire tower 122-123; Urban

problems 117, 120, 123
Italy: Cuisine 741; Geothermal resources 572, power plant 569; Medals from **732,** 735
Itsuku Shima Shrine, Japan: Torii entrance **863**
Ivenco, Mihai 484-485
Izmail, U.S.S.R. 483
Izmir, Turkey: Grape harvester **113**

J

Jabiru storks: Brazil 693
Jacanas (birds): Brazil 693
Jacareacanga, Brazil 688
Jackson, William B. 60, 63, **69,** 75
Jacobson, Doranne Wilson **272;** ***Purdah in India: Life Behind the Veil.*** Aug., 270-286
Jacobson, Jerry 273, 274
Jacobson, Laurie **272,** 274, 282
Jamaica (island), West Indies: Colonial period 747, 755 *see also* Port Royal
Jamestown, Va. 734, 755
Jamestown Festival Park, Va.: Restoration **580**
Japan: Geothermal resources 569, 572, uses of **574,** 575; *see also* Inland Sea
Japan, Sea of **836-837,** 854
Japanese: Hawaii 590, 596
Japanese art: Sculpture **62**
Jari River, Brazil: Rain **710-711**
Jari River region, Brazil: Pulp mill 715, 716; Rice farms 713, 716, **716-717;** Timber farm 713, **714-715,** 716
Jefferson, Thomas: Decimal system, proposed 288
Jeffery, David: ***Arizona's Suburbs of the Sun.*** Oct., 486-517
Jemez Plateau, N. Mex.: Geothermal research 577
Jet streams: Normal 800, 804, diagram **800;** Winter 1976-77 800, 804, 823, diagram **801**
Jewelry: Amber 424, **424,** 425, **425,** 428, 429, **429,** 435; India 270, 274, **275,** 276, **278,** 282; Salvaged **725,** 727, **732, 733,** 735, 736-737, 741, **754**
Jews: Dominican Republic 560; Salt 386; Turkey 94, 98; West Germany 159, 166, 168
Jhanda Torna (spring festival): India 279
John Cabot (Canadian Coast Guard vessel): Rendezvous with *Brendan* 790
John F. Kennedy International Airport, New York, N.Y.: Wind shear 218-219, 221, diagram **220**
John Muir Memorial Park, Wis. 196
Johns Hopkins University, Baltimore, Md.: Rat study 78, 86
Johnson, Lyndon 538
Johnson, William **545**
Johnstown, Pa.: Floods 822, 828
Jones, Dewitt, photographer: ***Redwoods, Rain, and Lots of Room: California's North Coast.*** Sept., 330-363
Jopek, Joe 188-189
Jordan, Helen B. 652
Jordan, Robert Paul **258;** ***Turkey: Cross Fire at an Ancient Crossroads.*** July, 88-123
Jugs: Salvaged **734, 761**
Juiná River, Brazil 700
Jura Mountains, France: Saltworks 398

K

Kabano Iáras (Cinta Larga tribe) 705, 708
Kabano Pomons (Cinta Larga tribe) 701, 705, 708; Diving helmet trophy **697,** 701
Kadlun (Eskimo) 636
Kadlun, Margo **632,** 644
Kalalau Valley, Kauai 591, **604**
Kalezić, Budimir 679
Kalihiwai, Kauai 605
Kaliningrad, U.S.S.R.: Amber mines 425
Kalocsa, Hungary 472
Kame formation 185, 203; Diagram **185**
Kaniak (Eskimo) **628,** 639, 642
Kansas City, Mo.: Flood (1977) **822,** 828
Karasjok, Norway: Lapps 375, 378
Karli, India: Rat-extermination campaign 75
Kasai, Shigenobu 862
Kashiwa Jima (island), Japan 854; Sole inhabitant 854-855, **860, 861**
Kato, Matsue **838, 839,** 840, 842
Kauai, the Island That's Still Hawaii. By Ethel A. Starbird. Nov., 584-613
Birds **588,** 612
Development, resistance to 584, 588-589, 592, 593, 594-595, **610**
Economy: Cost of living 590; Growth, effect of 592, 594, 595; Wages 584
Farming **590-591,** 605, 612; Cane fields 584, **584-585,** 589, 590, 596, **598-599,** 609
Fishermen 584, 589, 605
Food 589, 590, 596, 605, 608
History 590, 591, 592, 596, 598; Early Hawaiians 590, 602, 605, 606
Immigrants 584, 590, 596
Land, scarcity of 589, 592, 594, 605, 611
Map 593
Plants **588, 589,** 590, **596**
Population 592, 594
Tourists 592, **595, 606-607**
Kauffmann, John M. 4, 11, **54;** ***The Noatak.*** July, 52-59
Kautokeino, Norway 371, **373,** 375, 378-379; Children **374-375;** Snowmobile **374**
Kayseri, Turkey 110
Kelheim, West Germany 458, 461; Volksfest **460-461, 463**
Kemal Atatürk, Mustafa: Portraits **89,** 100; Quoted 88, 122; Reforms 90-91, 98, 104; Sepulcher 88; Soldier 90; Surname 91
Kennan, George F.: Quoted 258, 260
Kenneil, Edan 776, 777, 778, 787
Kenney, Nathaniel T.: ***The Rio Grande.*** July, 46-51
Kenya *see* Giraffes
Kenyon, Walter 767
Kerr, Warwick Estevam 716
Kerry, County, Ireland: Curraghs 775; Men observing *Brendan* **780-781**
Kettle Moraine State Forest, Wis. 201, 203-204
Kettles (depressions) 184, 188; Diagram **185**
Kewaskum, Wis.: Dairy farm **191**
Keys, Florida: Shipwrecks 755, 758, 761, artifacts from **742-745, 747, 750-751, 762, 764**
Khan, Nawab Hamidullah, King (Bhopal State, India) 284, 286
Kiel Bay, West Germany: Wind surfer **168**
Kilis, Turkey 100
Kim, H. Edward, photographer: ***Arizona's Suburbs of the Sun.*** Oct., 486-517
King, Mary 814
King George Island, Antarctica 254
King penguins **245,** 250; Chicks **240-241,** 251, **255;** Diet 251; Nesting **240-241,** 241, 250-251
King Range, Calif. 334, 336
King salmon: Fingerlings **821**
Kinga, Queen (Poland): Chapel **392;** Legend 392, 399; Salt sculpture **393**
Kingston, Jamaica: Sharks 755
Kinnerup, Anne **492**
Kino, Eusebio Francisco 491
Kipu (cattle ranch), Kauai 611
Kirin Building, Osaka: Beer garden **858-859**
Kısmet (hotel), Kuşadası, Turkey 117
Kiyok (Eskimo) **630, 645;** Family **630, 631**
Klamath River, Calif.: Indian fishing rights controversy 351; Salmon fishermen **334-335,** 351, 355, 357
Klein, Bob 764; Collection, items from **742-743, 747, 754, 762, 764**
Kleven, John W. 218
Klimasch, Wilhelm **62,** 82
Kluzek, Miezsyslaw **392**
Knudsen, George 203
Kobe, Japan 833, 842, 862
Kohama, Japan **843**
Koloa, Hawaii 590, 592, 596
Konya, Turkey: Coffeehouse **105**
Kopp, Ursula 165
Kopp, Werner 165-166, 168
Kosa, Julius 468

Kosovo, battle of 663, 666, 670, 673
Kotor, Yugoslavia 679, **680-681,** 682
Kotor, Gulf of, Yugoslavia 666, 679, **680-681**
Kraabel, Paul 40
Kreck, Loren 18-19
Krupp Steelworks, Bochum, West Germany 171-172
Krypton-86 (isotope): Wavelength determines meter 289
Kuabe (Gimi Big Man) 139, **140,** 141
Kuasa, Papua New Guinea: Gimi ceremonies 129, 132, **138-139**
Kuka, Juraj 466
Kukla, George 823
Kurashiki, Japan **856-857**
Kurds: Turkey 94, 98, **101,** 110
Kuşadası, Turkey 117
Kviteberg, Norway 366
Kyushu (island), Japan 830, 837, 848, **848, 849,** 854

L

LaBastille, Anne **196-197; *On the Trail of Wisconsin's Ice Age.*** Aug., 182-205
Labor unions: West Germany 159, 161, 162, **162-163,** 172
Labrador Sea: *Brendan* 788, **792-793**
Lake, Paddy 775
Lake formation: ***On the Trail of Wisconsin's Ice Age.*** By Anne LaBastille. Aug., 182-205
Lakshmi (Hindu goddess) 282
Lamb, George 813
Lamp, hanging: Salvaged **760**
Land reclamation: California Delta 819; West Germany **170;** Yugoslavia 473, 478
Land scraper, laser-guided **510-511**
Landforms, glacial: ***On the Trail of Wisconsin's Ice Age.*** By Anne LaBastille. Aug., 182-205
Landsat image: Lake Michigan **813**
Langenwalter, Bob 222
Langlade County, Wis.: Cranberries 189, **194;** Potato farming 188-189
Langley Research Center, Hampton, Va.: Air-safety research 212, **226-227,** 232
Langmore, Bank, photographer: ***The Rio Grande.*** July, 46-51
Langtry, Texas: Judge 49
Lanier, Sidney: Quoted 660
Lapland: ***Norway's Reindeer Lapps.*** By Sally Anderson. Sept., 364-379
  Climate 364, 371, 375, 376
  Map 364
  Population 364, 371; Growth 368, 375, 379
  Resource exploitation 367, 371, 379
  Roads 371, 375, 378, 379
  Settlements, summer 371
  Towns 371, **373,** 375, 378-379
  Vegetation **370,** 371, 375
  vidda 371, 372, 375
  Villages 364, 368, 371, **372,** 378
  Wildlife 375
  World War II destruction 373
Lapps: ***Norway's Reindeer Lapps.*** By Sally Anderson. Sept., 364-379
  Boarding homes 368, 376
  Children 364, **365,** 368, 371, 374, **374-375, 376, 377,** cover ill.
  Clothing **365, 370, 372, 373, 374-375, 377, 378,** cover ill.
  Contemporary life 364, 368, 371, 372-373, 376, 379; Snowmobiles 364, 371, **374,** 376, **378**
  Crafts, domestic **370,** 371, 379
  Culture, imperiled 364, 367, 368, 371, 379
  Culture centers 371, **373,** 375
  Dogs **369,** 371, 376, 378
  Economy 379 *see also* Reindeer
  Education 364, 371; Financial subsidy 379; Lappish programs 364, 368; Norwegian curriculum 364, 368; Scholarships 368; Television **376;** Vocational training 368, 376, 379
  Folk songs 364, 374
  Food 371, 376
  Generation gap 368, 371
  Home life 368, 371, 373, **377**
  Housing 364, **373,** 379
  Languages: Lappish 364, 368, 371, 379; Norwegian 368, 371
  Name 364, 371
  Occupations: New 367, 371, 375, 379; Traditional *see* Seminomadic traditions, *below*
  Origin obscure 371
  Political representation 378-379
  Population 364, 371; Increasing 368, 375, 379
  Religion 373
  Seminomadic traditions 364, 368, 371, 373, 379
Laser-guided land scraper: Water conservation technique **510-511**
Lassa fever: Rats carry 63, 86
"Last Supper" (Leonardo da Vinci) 320, 321, **322-323,** 386
Lathe, screw-cutting **306**
Latin America *see* Brazil; Dominican Republic
Lava formations: Galapagos Rift 444, **444-445, 449**
Lavoisier, Antoine 289
Lawrence Livermore Laboratory, Calif.: Geothermal technology 576, 579
Lazar, Prince (Serbia) 666
Leaves: Amber inclusions **432, 433,** 434, **435**
Lebder, Fred 807
Le Chameau (shipwreck) 761
Leda (mythical character): Leonardo da Vinci sketch **315,** 326
Lederer, Jerome 222
Ledoux, Claude-Nicolas 398
Lee, Albert **805**
Leed, Roger 41, 45
Leek, Idaria 546
Leković, Vladimir 682, **683**
Leković, Zoran 666, 667, **669,** 670, 676, 682
Leković clan: Godinje, Yugoslavia 663, 682
Le Moyne, Simon 387
Leningrad, U.S.S.R.: *banya* **268**
Leo X, Pope 328
Leonard, Mary Jane 37
Leonardo da Vinci: A Man for All Ages. By Kenneth MacLeish. Sept., 296-329
  Architectural planning 302, 317, 320, 329; City planning 302, 320
  Birth 299, 307
  Character 317, 320, 321; Curiosity 296, 299, 302
  Commissions 311, 313, 315, 318, 320-321, 322-323, 325
  Death 303, 329
  Equestrian statue 318, 320-321; Clay model, life-size 318, 321; Sketches for **318**
  Flight, dream of 302-303, 307, 309, 326; Sketches **309**
  Inventions 301, 302; Casting technique 318, 321; Replicas **306;** Sketches **300, 301, 307, 309, 312-313, 320**
  Notebooks **296,** 301, **301,** 303, 317, 321, 326; Reverse writing **296,** 317
  Paintings **304,** 307, 310, **310-311,** 311, 312-313, 317, 320, 321, 326; Murals 302, 320, 321, 322-323, **322-323,** 325, 326; Portraits **314, 315,** 317, 323, 325-326
  Parents 307
  Quoted 296, 309, 312, 321, 329
  Self-portrait **297**
  Sketches **297, 300, 301, 307, 309,** 311, **312-313, 315, 316, 318,** 320, **320,** 321, **324,** 326, **327, 329**
  Studies 296, 302, 310, 320, 326; Anatomy 302, **316,** 317, 320, 326
  Travels 302, 304, 307, 313, 321, 322, 325, 326, 328
  Weaponry 302, 312, 320; Sketches **312-313**
Leopard seals **252, 253;** Diet 251, **253,** 254; Painting of **250**
Leopold, Aldo 196, 197, 199; Writings 196, 197, 199
Leprosy: Japanese hospital **852, 853,** 855-856
Leslie Melville, Betty **418,** 419, **420,** 421
Leslie Melville, Jock **418,** 419, 421
Leventa (fortress), Ruse, Bulgaria 483
Leverkusen, West Germany: Factory 171, worker **156**
Lias, Don 826
Libby, Willard F. 616
Lieffring, Lyle 36
Life in India Behind the Veil. By Doranne Wilson Jacobson. Aug., 270-286

Lighthouses: California's north coast 330, 338, 339, 342
Lihue, Kauai 606, 608-609
Lille, France: Concorde (SST) landing **216-217**
Lime juicer: Salvaged 758, **762**
Limes, Key **762**
Limpets: Galapagos Rift **440-441**
Lincoln, Abraham **580**
Lindblad, Lars-Eric 242
Lindblad Explorer, M.S. **238**, 239, 242, 251, 254
Link, Ed 755
Lions 409, 412, **414, 415**
Little, Jim **501**, 512
Little Cumberland Island, Cumberland Island, Ga. **659**
Live oaks: Cumberland Island, Ga. 649, 650, 655, 656
Livinka, Stefan 469
Lockheed TriStars (jets): Landings **206-208**, missed approach 218
Loderer, Eugen 162, **162**
Log jams: St. Croix River 32, 36, Taylors Falls, Minn. **32-33**
Logan Airport, Boston, Mass.: Crash (1973) 232
Loggerhead turtles: Cumberland Island, Ga. 650, 657, 660
Logging *see* Lumber industry
Logrolling: Hayward, Wis. **32**
Long, Michael E.: ***The Air-Safety Challenge***. Aug., 209-235
Looe, H.M.S. (frigate) 758, 761
Lorenz, Gerhard 458
Los Alamos Scientific Laboratory, N. Mex.: Geothermal research 572, 577
Loso, John 379
Louis XVI, King (France) 398
Louisiana: Salt mine **388-389**
Lovćen, Mount, Yugoslavia 682
Lower Falls, Yellowstone River, Wyo. **3**
Lower Proxy Falls, Proxy Creek, Oreg. **4-5**
Lower Saxony (state), West Germany 161, 165
Lubarda, Dusan **673**; Granddaughter **672**
Ludwig, Daniel K. 713, 714, 716
Ludwig II, King (Bavaria): Castle **174**
Lumber industry: ***Redwoods, Rain, and Lots of Room: California's North Coast***. By Judith and Neil Morgan. Sept., 330-363; St. Croix Basin **32-33**, 35, 36; Skagit Basin 40, **42-43**, 45
Luštica peninsula, Yugoslavia 682
Luzon, Philippines: Rats 68-69, **87**

M

Macaroni penguins **242**, 251
McBryde Plantation, Eleele, Kauai: Sugar camp **610-611**
McCloskey, St. John 232
McDaniel, James 819, 821
MacDonald, Jim 387
McDonnell Douglas company: Jetcraft 218, crash 232
McDowell, Bart 258
McDowell Mountains, Ariz. **490-491**
McFarland, Mary 17
Machault (shipwreck): Cargo salvaged **751, 764, 765**, 767
McIntyre, Loren: ***Brazil's Wild Frontier***. Nov., 684-719
Mackay, Donald A., artist: ***How Soon Will We Measure In Metric?*** Aug., 287-294
McKee, Art 755, **762**
Mackerel, Black Sea **463**
McLaughlin, Joanna 357
MacLeish, Kenneth: ***Leonardo da Vinci: A Man for All Ages***. Sept., 296-329
Madden, Robert W., photographer: ***Kauai, the Island That's Still Hawaii***. Nov., 584-613; ***West Germany: Continuing Miracle***. Aug., 149-181
Madrid Codices 301, 321; Quoted 296
Maeshowe (megalith), Orkney Islands, Scotland: Age 617, 623
Magan, Arthur 772, 776, 787, 788, **789**
Maharlu Lake, Iran: Salt source **395**
Mahmut-Pasha (Turk) 663
Mailboxes: Cumberland Island, Ga. **648**
Majolica dish **745**
Malatya, Turkey 113
Mali: Salt caravan **384-385**
Malta: Ancient ruins 615, 616, **618, 619**, 621; Statues, ancient **614**, 615
Mammals *see* Giraffes; Rats; Reindeer; Wolves
Mammoths: Ice Age Wisconsin **185**, 199; Remains: U.S.S.R. 263
Manaus, Brazil 713
"Manilla Wreck" 727, 733; Artifacts from 724, **724-727**, 727
Manillas (arm bracelets) **725**, 727
Mapping: Brazil 689, 692
Maps:
  Africa: Giraffe range 404
  Antarctic Regions: Route of M.S. *Lindblad Explorer* 239
  Arizona: *Close-up: U.S.A., Arizona, New Mexico, Utah, and Colorado*, Oct. supplement
  Atlantic Ocean: *Brendan*'s route 772-773
  Brazil 689
  California's north coast 336
  Colorado: *Close-up: U.S.A., Arizona, New Mexico, Utah, and Colorado*, Oct. supplement
  Cumberland Island, Ga. 650
  Danube River and basin, Europe 456-457
  Dominican Republic 542
  Europe: Revised radiocarbon dates for megaliths 617
  Finnmark County, Norway 364
  Galapagos Rift located 442
  India: Nimkhera located 273
  Inland Sea, Japan 836-837
  Kauai (island), Hawaii 593
  Montenegro, Yugoslavia 668
  New Guinea: Gimi-language area 129
  New Mexico: *Close-up: U.S.A., Arizona, New Mexico, Utah, and Colorado*, Oct. supplement
  New World 738, 753; *Colonization and Trade in the New World*, Dec. supplement
  Noatak River 56
  North America: Gray wolf range 523
  Northwest Territories, Canada: Bathurst Inlet 632
  Rio Grande 48-49
  Skagit River 41
  Southwest, U.S.: *Close-up: U.S.A., The Southwest*, Oct. supplement
  Suwannee River 23
  Turkey 90-91
  Union of Soviet Socialist Republics 260-261
  United States: *Close-up: U.S.A., The Southwest*, Oct. supplement; Weather (1976-77) 800, 801, 808; *Wild and Scenic Rivers of the United States*, July supplement
  Utah: *Close-up: U.S.A., Arizona, New Mexico, Utah, and Colorado*, Oct. supplement
  West Germany 155
  Wisconsin 184
  World: Geothermal sites and tectonic plate boundaries 568-569; Plague areas 77
Marathon County, Wis. 189, 193
Maricopa, Ariz.: High school homecoming royalty **516**
Marijuana: India 279
Marin County, Calif.: Drought 814, 819, 828
Marinay, Pablo 68
Marine biology: ***Oases of Life in the Cold Abyss***. By John B. Corliss and Robert D. Ballard. Oct., 441-453
Marinoni, Augusto 301, **301**
Mariscal Canyon, Big Bend National Park, Texas **48-49**, 51
Markets: Salt **385**, 390, 398; Santo Domingo, Dominican Republic **550-551**
Markets, open-air: Ethiopia **385**; Hong Kong **215**; U.S.S.R. **256-257**
Marques, João da Costa 693; Grandson 693, 700
Marriages, arranged: India 274, 286
Marshall, A. J. 865
Marshall Plan: Aid to West Germany 151, 155
Marshes: Cumberland Island, Ga. 650, **656-657**; Humboldt Bay, Calif. **352-353**; Wisconsin 197, 199, 203
Martial: Quoted 435

UMI

Marx, Robert 735, 755
Masai (tribespeople): Salt source 381
Masai giraffe 421
Masai Mara Game Reserve, Kenya: Giraffes **405**
Mashimo, Tasuo and Yoshie 856
Masi, Norway 364, 368, **372;** School 364, 368, **376**
Mastodons: Ice Age Wisconsin 199
Matabai (Hindu goddess) 282, 284
Mato Grosso (state), Brazil 693; Airports 700; Cattle 693, 695; Road construction **688;** Wildlife 693
Matsuyama, Japan 842
Measures *see* Metric system
Mech, L. David **522;** ***Where Can the Wolf Survive?*** Oct., 518-537
Medals: Commemorative **749,** 753; Religious **732,** 735
Medici, Giuliano de' 328
Medici, Lorenzo de' 307, 313
Medicine and health: Shipboard 734, 735, 747, 758, 762; *see also* Diseases; Plague
Medicine vials: Port Royal, Jamaica **763**
Meeker, Rick **69**
Megaliths: Brittany, France 616, 617, 621; Orkney Islands 617, **622-623,** 623; Spain 616-617, 621
Meland, Leonard 334, 336
Melville Sound, Canada **630-631**
Melzi, Duke of **303**
Melzi, Francesco 303, 328
Memorial Cenotaph, Hiroshima 847
Mendocino, Calif. 359, 362, 363; Historic site 347; Old-timers **347,** 362-363; Restored buildings **346,** 359; Town model **347**
Mercedes-Benz (car) 154, 165, 168
Mercury poisoning: Japan 848
Merry-go-round **720**
Mesa, Ariz.: Retirement community near 510
Metallurgy: Discovery of 615, 621
Metalwork: ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
Meter (unit of measure) 291; Conversion table 292; Defined (1795) 288, redefined 289
Meter, Treaty of the (1875) 290
Methane: "geopressured zones" 569, 577
Metric Conversion Act of 1975 290
Metric system: ***How Soon Will We Measure in Metric?*** By Kenneth F. Weaver. Aug., 287-294
Basic unit (meter) 288
Conversion table 292
History 288, 289-290
Prefixes 289
Usage 289-290
Mexican wolf 523
Mexico: Aztecs 742; Brazil, ambassador to **691;** Cargo shipped to **732,** 735, **744, 746, 757;** Geothermal power plant 566, 573; Gray wolf 523; Salt pan **394;** Slave auctions 731; *see also* Rio Grande
Meyer, Jewell 828
Michelangelo Buonarroti 320, 321, 325, 326
Michigan: Salt mine 387; Wolves 523, Isle Royale 523, 525, 530
Michigan, Lake, U. S.: Formation 204; Ice cover **813**
Microwave Landing System (MLS): Diagram **230-231**
Middle Ages: Black Death 63, 67, 77, 86
Middle East Technical University, Ankara, Turkey: Students **97,** 98-99
Midwest, U. S.: Drought 799, 808, 809, 813, 826; Winter 1976-77 804, 808, 809, **812, 813;** *see also* Wisconsin
Mienna, Aslak 371, **377;** Children **365,** 371, **377**
Mienna, Inga 371
Mienna, Nils Johan **365,** 371, cover ill.
Migliore, Jack 806-807
Mihajlović, Dragoljub-Draža 673
Mihara, Japan: Suburb **843**
Mijušković, Mijo 674-675, **678**
Mila 23, Romania 483; Barge workers **484-485**
Milagros (shipwreck): Cargo salvaged **732,** 735, **746**
Milan, Italy: Aerial view **319;** History 321; Leonardo da Vinci 302, 312, 313, 317, 318, 320, 325, 326
Mile: British 288; International 287; Nautical 287; Roman 288; Statute 287; Survey 287, 293, 294, conversion table 292
Miller, Howard 45
Miller: Yugoslavia **676**
Miločer, Yugoslavia 679
Milton, Mass.: 1634 dam 2
Minamata, Japan: Mercury poisoning 848
Minami district, Osaka **858-859**
Mineral waters: Budapest, Hungary 472; Suwannee River springs 28
Minerals *see* Salt
Mines and mining: Amber 425, 428, **428,** 561; Bauxite 556-557, 667, 674; Coal **170-171,** 171; Diamond 258; Gold 553, 556; Salt 387, **388-389, 391,** 398-399
Minnesota *see* St. Croix River; *and* Wolves
Miquelet (flintlock) **751**
Mirnyy, U.S.S.R. 258
Mitchell, J. Murray, Jr. 823
Mnajdra (megalithic monument), Malta **618**
Modelo Market, Santo Domingo, Dominican Republic **550-551**
Mohler, Stanley R. 225
Molony, George 772, 773, **774,** 776, 787, 788, **789,** 790, **793**
Momatiuk, Yva: ***Still Eskimo, Still Free: The Inuit of Umingmaktok.*** Nov., 624-647
"Mona Lisa" (Leonardo da Vinci) **315,** 323, 325-326
Monasteries: Yugoslavia 675-676, 678
Mongooses: Hawaii 74-75, 612
Montana *see* Flathead River
Montenegro (republic), Yugoslavia: ***Montenegro, Yugoslavia's "Black Mountain."*** By Bryan Hodgson. Nov., 663-683
Art and artists 674-676, **678,** 682
Capital: Former 663, 673; Present 667
Clothing 667, 670, **673, 677,** 679
Farming 667, **670, 671, 677;** Soil, scarce 666
Food **662,** 672, 676, 679, 682
History 663, 666, 668, 669, 670, 673, 676, 679, 680-681, 682
Industry 666, 667
Map 668
Mountain ranges **664-665,** 666, **668-669, 674-675, 680-681**
Tourism 663, 666, 679, 681
Youth 667, 670, 672, **676**
Monument Valley, Ariz. **8-9**
Moon: Apollo 17 astronaut **722**
Moose: Wolf prey 525, **532, 533**
Morača River gorge, Yugoslavia 666, **674-675**
Moraines: Wisconsin 188, 193, 199, 203, terminal 184, 197, diagram **185**
Moranda, Frank and Julius 343
Morgan, Henry 755
Morgan, Judith and Neil: ***Redwoods, Rain, and Lots of Room: California's North Coast.*** Sept., 330-363
Moscow, U.S.S.R. **256,** 257, 258, 263, 267
Moses, George Higgins 663, 666
Mosques: Istanbul, Turkey **118,** 120
Mosquitoes: Arctic region **632,** 644; Brazil 701
Motoyasu River, Japan **844-845**
Mouden, L. Homer 219
Movie theater: Cacoal, Brazil **706**
Movies: Storage 390
Mratinje Dam, Yugoslavia 666, 675, 676
Mudie, Colin 775
Mug, delftware **758**
Muir, John: Boyhood home 193, 196; "glacial rambles" 196; Quoted 4
Muir Glacier, Alaska 196
Muir Lake Scientific Area, Wis. 196
Mujović, Petar 670, 672, **673**
Mullett, Peter 772, 776
Munich, West Germany 168-169, 179; Beer maid **168;** Foreign workers 152; Oktoberfest **172-173;** Transrapid train near **154**
Murmansk, U.S.S.R.: Children **266, 267;** Skiing 263
Musk-oxen: Canada 624, **626-627,** protection of 627
Musket balls 734, **751,** 767
Muslims: Turkey 90, 91, **98,** 104, 110, 120, 122; Yugoslavia **677,**

679, 682; *see also* Purdah
Mussels: Galapagos Rift **446-447,** 449
Mycenae, Greece: Tombs: Spiral designs 616, 617, **619,** 621
Mykines, Faeroe Islands 773, 777

N

Nagasawa, Kazuhiko 842
Nairobi, Kenya 403; Home near **418-419;** Skyline **402-403**
Nairobi National Park, Kenya 405, **411;** Giraffes **402-403, 411,** population 416
Namekagon River, Wis. 32, 33, 37
Namias, Jerome 823
Naojah River, Canada **634-635**
Na Pali coast, Kauai 590-592, **602-604**
Napier, Roddy 242
Narayan, Hari 274, 276, **282, 283**
Nassauer, George 293
Nathan, Donald W. 806
National Aeronautics and Space Administration (NASA): Air-safety research 212, 217-218, 222, **226-227,** 232, 234
National Airport, Washington, D. C.: Landings **210-211**
National Colony for the Curing of Leprosy, Japan **852, 853,** 855-856
National Foundation for the Indian (Brazil) 700, 705; Posts 701, 705, 708
NATIONAL GEOGRAPHIC (NGM):
Articles: George Higgins Moses on Montenegro (March 1913) 666
Editorials 1, 147, 295, 439, 583, 723
Indexes: *National Geographic Index, 1947-1976* 436-438
Printing 583
National Geographic Society (NGS):
Books *see* Books, NGS
Grants: Alaska early man excavation 147; Salvage diving 742, 755
Photographic equipment: Galapagos Hydrothermal Expedition 443, 453
Television series 439
National Industrial Research Institute of Chugoku, Japan: Model of Inland Sea **846-847,** 848
National Park Service, U. S.: Cumberland Island, Ga. 649-650, 652, 656, 657, 659, 660-661, ferry run by 650, **654;** Grants: Alaska early man sites 147; Redwood study 295
National parks: Japan 837, 854; Kenya *see* Nairobi National Park; United States: Big Bend 47; Glacier National Park, Mont. 13, **14-15;** *Visiting Our Past: America's Historylands* (new NGS book) 580-582; *see also* National Park Service
National Science Foundation: Antarctic research 254; Galapagos Rift expedition 443; Gimi people study 128
National Scientific Reserve, Ice Age: Wisconsin 188, 189, 205, sites (map) 184
National seashores *see* Cumberland Island
National Transportation Safety Board: Air safety 214, 217, 232, hearing **221,** recommendation 225
National treasures: Japan **851**
National Weather Service 809, 814, 821, 822, 823, 828
National Wild and Scenic Rivers, U. S.: Act 9, 33, 36, 40, 51; System 11, 13, 19, 27, 42, 48, 57, July map supplement
Natural gas: Shortage (Winter 1976-77) 809, 815, 828
Navigation aids: Salvaged **747**
Nawiliwili, Kauai 592, **610**
Nawiliwili Bay, Kauai 586, 605
Nazis 151, 159, 161, 166; Finnmark, Norway 373
Nebbia, Thomas, photographer: ***Africa's Gentle Giants.*** Sept., 402-417
"necking": Giraffes 412, **416-417**
Necklaces: Amber **424;** Gold **736**
Nelson, Richard 218
Nepotuí, Chief (Kabano Pomons) 705
Netherlands: New World 727, 728, 744, **748-749,** 755; Slave ships 727, 731, artifacts from 724, **724-727;** Water management 387, 390
Neudeck, Don 819
Neuschwanstein Castle, near Füssen, West Germany **174**
New Belgrade, Yugoslavia **478-479**
New Glarus, Wis.: Volksfest **192**
New Guinea's Gimi People. By Gillian Gillison. July, 124-146
New Mexico: Geothermal resources 576, 577; ***Surprise and Challenge Amid Sere Beauty.*** Oct. supplement
New World: *Colonization and Trade in the New World.* Dec. supplement; Discovery, theories of 769, 772, 775, 778, 790, 797; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767; Spanish settlements 542, 544, 553, 555, 561
New York (state): Rat-free areas 78, 79; Salt 387, 388, tax 387; Winter 1976-77 **806,** 806-807, 809
New York, N.Y.: Rats and rat control 78-79
New Zealand: Geothermal heating 569, 570
Newfoundland, Canada: *Brendan* 771, 773, 778, 787, 789, 790, **796-797.**
Newgrange, Ireland: Tomb, ancient **619**
Nicephorus Phocas (Byzantine emperor): Church commemorating **108**
Nickerson, Clifton L. 218
Nikšić, Yugoslavia 667, 672; Memorial near **674;** Sculptor 674-675, **678**
Niland, Calif.: Geothermal research 575-576
Nilsson, Hasse 243, 251, 254
Nimkhera (village), India: ***Purdah in India: Life Behind the Veil.*** By Doranne Wilson Jacobson. Aug., 270-286
Nishitani, Shigeru 840
Njegoš, Petar II (Montenegrin ruler) 663, **669,** 682
Noah's Ark: Length 287; Traditional resting place 113, 114, 122
Noatak (village), Alaska: Eskimos **58,** 59
Noatak River, Alaska: ***Our Wild and Scenic Rivers: The Noatak.*** By John M. Kauffmann. July, 52-59
Noël Hume, I. 758
Nombre de Dios, Panama 738
North America: *Colonization and Trade in the New World.* Dec. supplement; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767; Weather theories 800, 804, 809, 823, 828, diagrams **800, 801**
North Uist, Outer Hebrides 776-777
Northeast (region), U. S.: Winter 1976-77 **799, 806,** 806-807, 809; Winter 1977-78, prediction for 828
Northern Perimeter Highway, Brazil 700-701, 710
Northwest Orient Airlines: Windshear research 222
Northwest Territories, Canada *see* Umingmaktok
Norway rat 63, **64-66,** 68, 72, 74, 78, 86, 87; Name origin 63, 66
Norway's Reindeer Lapps. By Sally Anderson. Sept., 364-379
Nose plumes: Erigpactsâ chief **696-697**
Nose ring: India **278**
Nova Scotia (province), Canada: Shipwreck 761
Nuclear-bomb testing: Eniwetok Atoll 60, 63
Nuclear power plants: Brazil 169; Skagit River, proposed 40, 41, 45; Wisconsin 204-205
Nuestra Señora de la Concepción (shipwreck): Salvage **752-753,** 755
Nuestra Señora de las Maravillas (shipwreck): Treasure **736-737**
Nuestra Señora de los Milagros (shipwreck): Cargo salvaged **732,** 735, **746**
Nyland, Dick 814

UMI

O

O Shima (island), Japan: Leprosy patients **852, 853,** 855-856
Oakland, Calif.: Reservoir, drought-stricken **819**
Oaks, live: Cumberland Island, Ga. 649, 650, 655, 656
Oases of Life in the Cold Abyss. By John B. Corliss and Robert D. Ballard. Oct., 441-453
Ob River, U.S.S.R. 263; Source **258**
Occidental Chemical Company: White Springs, Fla. 27
Oceanography: ***Oases of Life in the Cold Abyss.*** By John B. Corliss and Robert D. Ballard. Oct., 441-453
O'Connell, John 775
Octocoral: Galapagos Rift **444**
Octopus: Galapagos Rift **448**; Japanese food **840-841,** 854
O'Donnell, J. J. 217
Oglethorpe, James Edward 655
Ohio: Winter 1976-77 804, 806, 809; Winter 1977-78, preparing for 828
Ohio River Valley: Winter 1976-77 808, 809
Ohlson, Ed 357
Ojibwa Indians **31,** 36-37
Okapi 404, **404**
Okefenokee National Wildlife Refuge, Ga.-Fla. 21
Okefenokee Swamp, Ga.-Fla. 20, 21
Oktoberfest: Munich, West Germany **172-173**
Olson, Elizabeth Uhrenholdt 37
Olson, Sigurd 37
On The Trail of Wisconsin's Ice Age. By Anne LaBastille. Aug., 182-205
O'Neill, Thomas J.: ***Amber, Golden Window on the Past.*** Sept., 423-435
Onondaga Indians: Salt 387
Oo, yellow-thighed **588**
Operation Fish Flow: Columbia River 826
Orange trees: Ice-covered **798**
Orellana, Francisco de 693
Orick, Calif.: Rodeo **356**
Orkney Islands, Scotland: Megaliths 617, **622-623,** 623
Orly Airport, Paris, France: Turboclair fog system **224,** control room **225**
Orme Dam, proposed, Salt River, Ariz. 507, 509, 510
Ormonroyd, Frank 229
Oroville, Lake, Calif.: Drought-stricken **818**
Osaka, Japan 832, 840, **858-859,** 862; Residents 856
Ottoman Empire 88, 91, 94, 120; Danube River region 455, 472, 481, 483; Sultan, deposed 90
Oudshoorn, H. M. 387, 390
Ounce (liquid measure) 287, 293
Ounce (unit of weight) 287, 293; Conversion table 292
Our Wild and Scenic Rivers. July, 2-59
Outwash plain: Wisconsin **185,** 189, 193
Oyster Bed (Galapagos Rift oasis) 449, **449**
Oystermen: Winter 1976-77 **802-803,** 806, losses 805
Ozama Fortress, Santo Domingo, Dominican Republic **555**
Ozama River, Dominican Republic **555**; Shantytowns 552
Özer, Oşman **89**
Özyavuz, Ekrem 100

P

Pacific Gas and Electric Company: Geothermal power plant **566-567,** 572-573
Pacific islands: Rats, introduction of 67, 68, 72, 74-75
Pacific Ocean: California coast **332-333, 344-345;** Weather theories 800, 804, 809, 823, 828, diagrams **800, 801;** *see also* Galapagos Rift
Pack ice: *Brendan* encountered 787, 788-789, 790, **792-793**
pacu (fish): Brazil 693, 700
Pahoehoe (lava formation): Galapagos Rift **449**
Painter, Bill 11
Painters: Japanese shipyard **835**
Painting supplement: ***History Salvaged From the Sea.*** Dec. supplement
Paintings: Yugoslavian primitive **480, 678,** 682; *see also* Leonardo da Vinci
Palabe, Dominican Republic 546
Palazzo Vecchio, Florence, Italy: Altarpiece 311; Murals 322, 323, 325, 326
Paleo-Indians: Wisconsin 199
Palm (unit of measure) **287**
Palmdale, Calif.: Jet landing **206-208**
Palmer, Fred **190**
Palmer Station, Anvers Island, Antarctica 254
Palmetto trees: Cumberland Island, Ga. 652, 656, **660-661**
Pan American Highway system: Brazil 700-701, 708, 712; Tire repair shop **707**
Panama: Piracy 755; Trade fair 735, **738-739**
Pandora's box (myth) 692, 708
Pank, Larry 72, 74
Pantanal (swamp), Mato Grosso, Brazil 693; Aerial view **694-695;** Wildlife 693, **698-699**
Panui, Eddie, and family **610**
Paprika: Hungary 472
Papua New Guinea *see* Gimi people
Paradise Harbor, Antarctic Peninsula **246-247**
Paraná River, Brazil 693
Pardee Reservoir, Oakland, Calif.: Drought-stricken **819**
Paredi, Angelo **301**
Park of the Indians, Santo Domingo, Dominican Republic 552
Parker, Bill 342
Parks, Winfield, photographer: ***The Danube: River of Many Nations, Many Names.*** Oct., 455-485
Passau, West Germany **462**
Passot, Robert 339
Pastoriza, Jimmy 558
Pater, Walter: Quoted 326
Patterson, Carolyn Bennett: ***Rescuing the Rothschild.*** Sept., 419-421
Patursson, Trondur **770,** 777-778, 787, 788, 790, **791, 792**
Paul, Saint 94; Birthplace 117; Ephesus 114
Peace Memorial Park, Hiroshima **844-845,** 847
Pearson, Norman 41
Peat bogs: Wisconsin 189, 197, 199, accidental burning 189, draining 189, 194, 203
Peckford Island, Newfoundland: *Brendan* landing 790, **796-797**
Pedersen, Eric **64**
Pee Dee (river), N.C.-S.C.: Song 20, manuscript **22**
Pelascini, Mel **353**
Pele (Hawaiian goddess) 592
Peligro cattle ranch, Dominican Republic **560-561,** 563
Penguins: ***Penguins and Their Neighbors.*** By Roger Tory Peterson. Aug., 237-255
Chicks 239, **240-241,** 241, 251, 254, **255**
Coloration 250, 254
Diet 251
Dives: Depth of 241
Evolution of 242
Feathers 240; Down 240, **240-241,** 251, **255**
Habitats 239
Nesting **240-241,** 241, 250, 255
Oil from 239, 255
Physiology 240-241
Porpoising 241, **248-249**
Predators 251, 253, **253,** 254
Recognition by voice 254
Species, number of 239
Speed 241, 248
Penn, William 755
Pennington, John **656, 657, 660;** ***Cumberland, My Island for a While.*** Nov., 649-661
Pennsylvania: Winter 1976-77 807, 809
Pentoney, Howard 351
Perez, Eufemia 69
Perlman, Steve **589**
Perry, Matthew 862
Peru Current: Weather theories 800, 801
Peshev, Matej 481
Pest control: ***The Rat, Lapdog of the Devil.*** By Thomas Y. Canby. July, 60-87
Peter, Saint: Antioch 115

UMI

Peters, Karen **499**
Peters, Norbert **516**
Peterson, Mendel: ***Reach for the New World.*** Dec., 724-767
Peterson, Roger Tory: ***Penguins and Their Neighbors.*** Aug., 237-255
Petrels: Antarctic Regions **244,** 251, **252,** 254
Pewter: Salvaged 735, **760,** 767
Philippines: Chinese goods shipped to 735, **744, 757;** Rats 63, 68-69, **87,** control methods 68, 72
Phips, William **752-753,** 755
Phoenix, Ariz.: ***Arizona's Suburbs of the Sun.*** By David Jeffery. Oct., 486-517
Crime 503
Dust storm **514-515**
Flower farm near cover ill.
Food bank for poor 490
Founding 491, 495
Growth, unchecked 487, 495
Hotel exercise class **492**
Name 495
Newcomers 487, 495, 498
Suburbs **488-489,** 495, **496-497,** 498, 507; Retirement communities 510
Symphony 492
Tallest building **493**
Tennis ranch near **486-487**
Urban sprawl, arguments for 495, 497
Water supply 497, 503, 507, 509
Zoo education program 510
Phoenix Symphony Orchestra: Guest conductor **492**
Phosphate: White Springs, Fla. 27
Picacho Peak, Ariz.: Lettuce field near **511**
Piccinini, Adroaldo 710
Pidgin: Hawaii 584, 589-590
Pied Piper of Hamelin 82; Engraving of **62**
Piero da Vinci 307
Pierson, Lawrence **827**
Pigs: Gimi people 128, 129, **130,** 139, 141, pig kill 132
Pile driver **306**
Pilgrims: Japan 831, 856-857, 860
Pillows (lava formation): Galapagos Rift 444, **444-445**
Pinal County, Ariz.: Land, collapsed **501,** 512
Pines: Bristlecone **615,** 616, 621; Seedlings **714-715**
Piñeyro, Frank 558
Pins: Salvaged **764**
Pint (liquid measure) 287, 293
Pinto (automobile): Metric 293
Piper Navajos (airplanes): Air-safety research **226-227**
Pipes, smoking: Clay **765;** Water **105**
Pirates: New World 749, 755
Pistols: Flintlocks **750-751**
Piva Monastery, Yugoslavia 675-676
Piva River and gorge, Yugoslavia 666, 675, 676
Pivnice, Yugoslavia 473; Town square **480-481**
Plague 63, 77, 81, 86; Cases (1975) 77, 86, distribution 63, 86, map 77; Host fleas **77,** 86; Rodent carriers 63, 67, 77, 84, 86
Plantation, Calif.: Residents 357, 359
Plantations: Cumberland Island, Ga. **654-655,** 655, 660
Plate tectonics 569, 576; Galapagos Rift 442; Lines of Fire (map) 568-569
Platt, Robert 652
Platters: Salvaged **740, 760**
Plaza Colón, Santo Domingo, Dominican Republic 538
Pleistocene Epoch *see* Ice Age Trail
Plettner, Bernhard 169
Pliny the Elder 424, 425; Leonardo da Vinci inspired by 326; Quoted 409
Poi 589, 590, 605, 608
Point Beach nuclear power plant, Wis. 204-205
Point Beach State Forest, Wis. 204
Point Reyes peninsula, Calif. **354-355**
Poipu, Hawaii 592, 594
Poland: Salt mine **392, 393,** 398-399; World War II 399
Polebridge Mercantile: Polebridge, Mont. 15
Polland, Josef and Wilma 465
Pollution: Japan 834, 847, 848; Ruhr district, West Germany **156-157**
Polynesian rat **67,** 68, 72, 74
Ponto, Jürgen **150**
Poppinga, Anneliese: Quoted 151
Poppy field: Turkey **112**
Porcelain: Chinese **744,** 767
Porcupine: Noatak Basin **57**
Port Royal, Jamaica 755, 756-757, **760;** Artifacts from 755, **757-761, 763**
Portage, Wis.: Muir homestead 193, 196
Porterie, Lillian **494**
Pôrto Velho, Brazil 708
Portobelo, Panama: Trade 735, fair 735, **738-739**
Portugal: New World 728, 731, 744
Possums: Gimi people 131, **142, 143,** 145
Potatoes: U.S.S.R. **256-257,** 267; Wisconsin 188-189
Pottery: Delftware **758;** Earthenware **761;** Japan **850,** potter **851;** Slipware **759**
Pound (unit of weight) 288; Conversion table 292
The Power of Letting Off Steam. By Kenneth F. Weaver. Oct., 566-579
Powers, W. Roger 147
Prakash, Ishwar 75
Praying mantis: Amber inclusion **427**
Precambrian bedrock: Wisconsin 188, **200-201**
Predators *see* Wolves
Prehistory *see* Archeology
Preserving Our Wild and Scenic Rivers. July, 2-59
Pressler, Larry 813
Primate Foundation of Arizona 510
Princeville-at-Hanalei, Hawaii **594-595**
Proxy Creek, Oreg. **4-5**
Puerto Plata, Dominican Republic 558, 560-561; Baseball game **552-553;** Old Town 561
Puget Sound, Wash. 39, 40
Puget Sound Power and Light: Proposed nuclear plant 41, 45
Pugh, Clifford 507
Purdah in India: Life Behind the Veil. By Doranne Wilson Jacobson. Aug., 270-286
Chaperones 286
Children 274, 279, **279,** 280, 282, 284, **286**
Conversations: Private 274, 285; Public taboo 274, 279, 285
Etiquette 274, 277, 279, 282, 284, 285
Festival antics 279
Hindu 270, **271, 272,** 274, 276-277, 279, 282, 284, **284**
Home vacations (freedom of) 277, 279, 280
In-laws 270, 273, 274, 276, **276,** 277, **277,** 280, 282, 284
Marriage rules 270, 274, 280, 282, 284
Meaning of 270
Men: Discipline 270, 274, 285; Husbands 270, 274, 277, 279, 280, 282, 284, **285;** Older 277, 284; Worship of little girls 284, 286; Younger 277, 279, 284, 285
Muslim 270, 279, **279,** 282, 284, 286
Outmoded 270, **278,** 279, **279, 285,** 286
Schooling 284, 286
Seclusion 270, 274, 276, 282, 284, 286
Security 276, 282, 286
Survival of 270, 279
Veiling 270, **271,** 274, 277, 279, **279,** 282, **282, 283,** 284, **284,** 286; Before in-laws 270, **272, 276,** 277; Before older people 270, 277
Women: Discipline 270; Duties 274, 276, 282, **284,** 286; Financial independence 282; Head of household 273, 276-277; Political power 270, 284, 286; Religious power 282, 284; Widows 282
Putman, John J.: ***West Germany: Continuing Miracle.*** Aug., 149-181
Puttkamer, W. Jesco von 701, 718
Puttkamer, Baron Wolf von 718, **719**
Pyramid, Great: Built to cubits 287
Python, Indian **74**

Q

Quart: British 287; Dry 287; Liquid 287, conversion table 292
Quarter doubloons **737**
Quebec (province), Canada: Colonization 755; Shipwrecks off 761, artifacts **751, 764, 765,** 767

R

Rabbits: Barges, raised on 461, **463**
Raccoon **722**
"Rada Tomato" (Yugoslav) 455
RADAM (RADar AMazon) 689, 692
Radar, side-scanning: RADAM 689, 692
Radiation Effects Research Foundation, Hiroshima 846-847
Radioactive wastes: Salt bed storage 390
Radioactivity: Geothermal energy, source of 568, 570
Radiocarbon dating: ***Ancient Europe Is Older Than We Thought.*** By Colin Renfrew. Nov., 615-623
"radiocarbon revolution" 615
Railroads: Yugoslavia 666, **675,** 679; *see also* Trains
"Rainbow Town," Osaka 862
Rainbows: Kauai 583, **599;** Pacific Ocean **345**
Ramos, Marcos Cardoso 710, 712
Ramos, Maria Jussana 712
Rao, N. S. 75
Rasmussen, Knud 632, 634
Ratproofing: Granaries and fields **72, 84-85,** 86
Rats 734; ***The Rat, Lapdog of the Devil.*** By Thomas Y. Canby. July, 60-87
  Adaptability 60, 63
  Attacks on humans 60, 63, 75, 79, 81, 87
  Behavior 64, 69, 78, 84, 87
  Climbing ability 60, 64, 67
  Control methods attempted 63, 68, 69, 74, 80, 81, 82, 84; Poisoning 60, 62, 63, 72, 74, 75, 78, 79, 80, 81, 82, 84; Rat killers **62,** 68, 69, 77, **80-81,** 81; Sanitation most effective means 78, 79, 86
  Crop losses to 60, 63, 67, 68, 69, 72, 74, 75, 80
  Diseases carried by 60, 63, 67, 77, 81, 84, 86
  Food, used as 68, 69, **87**
  In art **62, 70, 71,** 75, **77,** 82
  In legend **62,** 82
  In religion 70, 72, 75
  Intelligence: Learning ability **64, 65;** Street smart 75, 78; Wariness 84
  Laboratory animal **69,** 84; Value as 60, 64, 86
  Life-span 78
  Natural enemies 63, **74,** 75, 78; Ineffectiveness of 74, 78, 81
  Original homeland 62, 63, 67, 68; Dispersion from 63, 66, 67, 68, 86
  Physical feats 60, **64, 65**
  Prolificacy 60, 63, 67, 68, 69, 78, 81
  Rat lore 87
  Running speed 87
  Species 63, **66-67,** 68
  Stress, reaction to 64
  "super rats" 60, 62, 63, 82
  Swimming ability 60
  Teeth 60, 63, **79**
  Trained rats **64, 65, 69**
  Weight, maximum 87
Rattail (fish): Galapagos Rift **448, 453**
Reach for the New World. By Mendel Peterson. Dec., 724-767
Recession: West Germany 151, 158, 161, 162, 165
Red Square, Moscow, U.S.S.R. **256**
Red wolf 523
Redwood Creek, Calif.: Erosion and silting 347, 360; Tallest Trees Grove 295, 347, **360**
Redwood National Park, Calif. **340-341,** 347, 360, **360, 361;** Clear-cutting to boundary **360, 361;** Expansion, proposed 295, 351, 360, protest against **360-361;** Tallest Trees Grove 347, **360**
Redwoods 295; ***Redwoods, Rain, and Lots of Room: California's North Coast.*** By Judith and Neil Morgan. Sept., 330-363
Reefs: Shipwrecks 724, 733, 738, 755, 758
Reflections From the North Country (Olson): Quoted 37
Regensburg, West Germany 456; Quays 461, **463**
Reidinger, Russell F. 68, 69
Reindeer **268-269;** ***Norway's Reindeer Lapps.*** By Sally Anderson. Sept., 364-379
  Ear notching 374
  Ferry transport of 366
  Grazing lands 364, 366-367, 371, 379; Lichens 375
  Herds 364, **366-367,** 368, 369, 371, 374, 378, 379
  Hides **369, 370,** 371, 376
  Lassoing of 374
  Migrations 364, 368, 369, 371, 376, 378
  Owners, number of 364, 371
  Population increase 375
  Roundups 371, 374, 376, 378; Corral **368-369,** 371
  Slaughtering of 369, 371, 374
  Survival rate 375
  Wintering-over areas 364, 375
Renaissance: ***Leonardo da Vinci: A Man for All Ages.*** By Kenneth MacLeish. Sept., 296-329
Renfrew, Colin **622-623;** ***Ancient Europe Is Older Than We Thought.*** Nov., 615-623
Reptiles: Crocodiles **556-557**
Rescuing the Rothschild. By Carolyn Bennett Patterson. Sept., 419-421
Reservoirs: Drought-stricken 808, 814-815, 817, **818, 819,** 826
Resin, fossil *see* Amber
Resorts: Kauai 592, 594, 611
Reuss, Henry S. **189,** 203
Reuss, Margaret 203
Reyes, Rafael 556-557
Reykjavik, Iceland 778, 787; Geothermal heating 569, 573, 576; Name origin 576
Reynolds, Tom 15, 17
Rheinbraun company, West Germany: Coal mine **170-171**
Rhine (river), Europe 151, 166, 172, 180; Salt content increasing 390
Rhine-Main-Danube Canal, Europe 456, 461
Rhöndorf, West Germany 151
Rice, Charles A. and Pat 611
Rice: Brazil 695, 704, 713, harvest **716-717;** Dominican Republic **546,** 564; Rats' consumption of 68, 69, 72, 87
Richardson, Norman 357
Richter, Curt P. 78, 86
Ring, gold **754**
Ring of Brogar, Orkney Islands **622-623,** 623
Ringed seal: Carcass **629**
Rio Grande, U. S.-Mexico: ***Our Wild and Scenic Rivers: The Rio Grande.*** By Nathaniel T. Kenney. July, 46-51
Rites of passage *see* Initiation rites
Rituals and Spells Shape Gimi Lives. By Gillian Gillison. July, 124-146
Rivers: Diverting and rechanneling, Pleistocene 188, 199, 204; *see also* Danube River
Rivers, U. S.: Drought-stricken 808, 813, 814, 817, 826; ***Our Wild and Scenic Rivers.*** July, 2-59; *Wild and Scenic Rivers of the United States.* July supplement
  The Flathead. By Douglas H. Chadwick. 13-19
  The Noatak. By John M. Kauffmann. 52-59
  The Rio Grande. By Nathaniel T. Kenney. 46-51
  The St. Croix. By David S. Boyer. 30-37
  The Skagit. By David S. Boyer. 38-45
  The Suwannee. By Jack and Anne Rudloe. 20-29
Rivers Wild and Pure: A Priceless Legacy. By Robert E. Doyle. July, 2-11
Robinson, Jack 742
Rock: Geothermal-energy systems 570, 573, 577, cutaway paintings **568, 569**
Rockhopper penguins 237, 239, 242
Rocky Mountain goat **13**
Rocky Mountain wolf 523
Rocky Mountains, U. S.: Drought 813

Rod (unit of measure) 287; German 288
Rodent Research Center, Los Baños, Philippines 68, 69, 72
Rodents *see* Rats
Rodeos: Brazil **712-713;** Orick, Calif. **356**
Rodriguez, George 561, 564
Rogers, Martin, photographer: ***The Dominican Republic: Caribbean Comeback.*** Oct., 538-565
Roman Empire 94; Ephesus 114; Measures 288; Salt 384, 386, 387
Roman ruins: Turkey 104, **114-115,** 117
Romana Reds (cattle) **560-561**
Romania: Danube River region 455, 466, 476, 481, 483-485, **484-485**
Rome, Italy: Leonardo da Vinci 326, 328; Rats and rat control 82
Rondon, Cândido Mariano da Silva 693, 700
Rondônia (state), Brazil: Capital 708; Homesteaders 708; Name origin 700; Tin 718
Rood (unit of measure) 288
Roof rat 63, **67,** 68, 72, 74, 86
Roosevelt, Theodore: Brazilian travels 693, 699, 700, 701
Roosevelt River, Brazil 693, 700
Rosa, Adão Morais da **702,** 718
Rosa, Altemira 718
Rosamond Dry Lake, Calif.: Airsafety research **222**
Rosario Dominicana company, near Cotuí, Dominican Republic 553, 556
Rose, Yugoslavia 682
Rosenberg, Ludwig 159, 161
Ross Dam, Big Beaver Valley, Wash. 40, 41, 42
Ross Lake, Wash.: Clear-cutting for **43**
Rothschild, Lionel Walter 419
Rothschild's giraffe: ***Rescuing the Rothschild.*** By Carolyn Bennett Patterson. Sept., 419-421
Rotorua, New Zealand: Geothermal heating 569
Rubens, Peter Paul: Drawing by **324-325**
Ruckdeschel, Carol 656, 657, 660
Rudas Baths, Budapest, Hungary 472
Rudloe, Jack and Anne: ***The Suwannee.*** July, 20-29
Ruhr (district), West Germany: Industry **152-153, 156-157,** 171-172, 177; Megalopolis 156, 171; Parkland 156; Pollution **156-157**
Ruhr River, West Germany 171, 172
Rum: Dominican Republic 552, 558
Ruse, Bulgaria 483
Russ, Joe, III 330
Russo-Turkish War 481, 483

S

SI *(Le Système International d'Unites) see* Metric system
Sada Misaki (peninsula), Japan 834, **838, 839,** 840, 842
Saemundsson, Kristján 576
Saguaro cactuses 495, **506**
Saida Begam 279, 282
St. Andrew Sound, Ga. 655
St. Basil's Cathedral, Moscow, U.S.S.R. **256**
"St. Brendan's Isle" (legend) 769, 785
St. Croix Dalles, Wis. 188
St. Croix River, Wis.-Minn. 182, 188, **196-197;** ***Our Wild and Scenic Rivers: The St. Croix.*** By David S. Boyer. July, 30-37
St. Croix River Association 37
St. George Reef, Calif.: Lighthouse 338, 339; Shipwreck 338, 339
St. Johnianus hibiscus **588**
St. Simons Island, Ga. 655
Sakamura, Yuki **844**
Salmon: Fingerlings **821;** Spawning season **530-531**
Salmon fishing: North coast, California **334-335,** 336, 351, 355, 357
Salmon runs: Low-level rivers and 814, 821, 826, fingerlings stranded 814, **821,** Operation Fish Flow 826
Saloon **176-177**
Salt: ***Salt—The Essence of Life.*** By Gordon Young. Sept., 381-401
Beliefs about 386
Biological uses 381, 401
Caravans 382-383, **384-385**
Crystals **380;** Electron micrographs **398-399**
Evaporation process 390, 394, **394,** 400
History 384, 386, 390, 391, 401
Industrial uses 386-387, 391
Mines and mining 387, **388-389,** 398-399; Brine technique 387, 399; Hospital in 392, 398, 399, 401; Painting of **391;** Storage in 390; Tools, ancient **391**
Money 384
Poisonous 387
Sculpture **392, 393,** 398, 399
Seasoning 383, 384, 386, 401
Sources 381, **382-383,** 386, 390, **394, 395, 396,** 400
Trade 383, 384, **385,** 390, 398, 401
Salt lick: Giraffes at 409, **410**
Salt pans: Brittany, France **394;** Mexico **394**
Salt River, Ariz.: Dam, proposed 507, 509, 510; Hohokam irrigation system 490; Settlers 491, 495
Salt River Project, Ariz.: Canal **496-497**
Saltcellar, gold 381, **386**
Saltshakers **386**
Salvage: ***History Salvaged From the Sea.*** Dec. supplement; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
Salvation Army work: Buffalo, N.Y., blizzard (Jan. 1977) 806-807
Salzberg (Salt Mountain), Austria: Salt mine 401
Samaná, Dominican Republic 538, 544
Samaná Bay, Dominican Republic 538; Fisherman **547**
Samaná Peninsula, Dominican Republic: Irrigation canal dedication **543;** U. S. colony 538, 544, 545
San Andreas Fault, Calif. 334, **354-355,** 357
San Antonio, Philippines: Rats 69, 87
San Antonio (shipwreck) 733-734
San Diego, Calif.: Rats 63
San Francisco, Calif.: Geothermal power 573; Salt pans 390
San Joaquin Valley, Calif.: Irrigation wells drying up 815, 826, 828
San Vicente, Mexico: Family **50-51**
Sanatorium Kinga, Wieliczka, Poland 392, 398, 399, 401
Sanchez, Alberto 517
Sand and gravel deposits: Wisconsin 185, 189, 201, 203
Sand bath: Japan **848**
Sand dunes: Cumberland Island, Ga. 649, 650, 652, **660-661,** 661
Sandhill cranes **202-203,** 204
Sandspit **658-659**
Sandstone **428;** Amber in **429**
Santa Catalina Mountains, Ariz. **500,** 517
Santa María la Menor, Cathedral of, Santo Domingo, Dominican Republic **554**
Sante Fe River, Fla. 28, 29
Santiago, Dominican Republic 557-558; Baseball team 557; Industry 557-558, **564-565;** Population 542, 557; Street scenes **558, 559**
Santiago Industrial Free Zone, Santiago, Dominican Republic 557-558, **564-565**
Santo Domingo, Dominican Republic 538, 552-553; Aerial view **554-555;** Amber jewelry 429, **429,** 551; Cathedral 553, **554;** Cultural center 552; Founding of 555; Housing **543,** 552; Market **550-551;** Population 542, 552, growth 555, 558; Water shortages 558
Santos, Sarah 596
São João (cattle ranch), Mato Grosso, Brazil 693
São Miguel, Azores: Geothermal cooking **572**
Sardines: Japan **847,** 854
Sargent, Charles 495
Satellite weather images: United States **810-811, 813, 816, 817,** 823
The Satin Bowerbird, Australia's Feathered Playboy. By Philip Green. Dec., 865-872
Sauk County, Wis. 196-197, 199, **202-203**

Sauk River, Wash. 41
Sava, Parfente 483
Saw, waterpowered **306**
Saw-whet owl **37**
Scarecrow: Ship's figurehead, replica of **349**
Scheer, Tina and Robert **32**
Schlecht, Richard, artist: ***History Salvaged From the Sea.*** Dec. supplement; ***Reach for the New World.*** Dec., 724-767
Schmidt, Helmut **180**
Schmitz, Dave 55, 57
Schmücker, Toni **158,** 162
Schönbühel, Austria: Aerial view **454**
Schultz, Gwen 205
Schuster, John **195**
Schütz, Derly 718
Schütz, Klaus 179
Schütz, Maria 718
Schuwirth, Horst-B. 179-181
Scientific areas (preserves): Wisconsin 188, **200-201**
Scientific reserves, national: Ice Age 188, 189, 205, sites (map) 184
Scotland: *Brendan*'s voyage 773, 775, 776, 778; Rats, poison-resistant 82
Scott, Robert F. 244
Scotts Bluff National Monument, Nebr. **581B**
Scottsdale, Ariz.: City council 507, councilman **491;** Frank Lloyd Wright Foundation **502;** Growth plans 507
Sculpture: Ratcatcher **62;** Rats **70;** Yugoslavia 674-675, **678**
Scurvy 747, 758, 762
Scutari, Lake, Albania-Yugoslavia 666, 679, 682
Sea anemone: Galapagos Rift **445**
Sea bream: Japan **838,** 848, 851
Sea cucumber: Galapagos Rift **448**
Sea Island cotton 655
Sea Islands, S.C.-Ga.-Fla. *see* Cumberland Island
The Sea Ranch, Calif. 357, **358**
Sea Venture (ship): Jug from **734**
Sealing: South Georgia Island 244
Seals: Antarctic Regions 244, **245, 250,** 251, **252, 253,** 254; Carcass **629**
Seals (stamps): Salvaged **727,** 735
Seamans, Robert C., Jr. 579
Seattle City Light, Wash. 40-41, 42
Seminole Indians: Suwannee River 23; War (1835) 28
Semi-nomads *see* Lapps
Senegal: Rats, farmers' war on **80-81**
Seracini, Maurizio **325**
Serbs: Turkish defeat of 663, 666, 670, 673; Yugoslavia 472, 473
Serengeti Plain, Tanzania: Giraffes **406-407,** 416
Serra Morena (FUNAI post), Mato Grosso, Brazil 701
Sete Quedas Falls, Paraná River, Brazil 693
Seto, Japan 834, **838, 839,** 840, 842
Seto Naikai: Inland Sea's Japanese name 830, 837
Seto Naikai National Park, Japan 854; Map 836-837
747's (jetliners): Cockpit **212-213;** Collision 214, **228-229**
737's (jetliners): Instrument panel **233**
727's (jetliners): Accidents 218-219
Seventh of September Camp, Rondônia, Brazil 708
Severin, Dorothy 775
Severin, Ida 775
Severin, Timothy 769, **774, 786, 789;** ***The Voyage of*** **Brendan.** Dec., 770-797
Sforza, Lodovico 312, 313, 317, 318, 320, 321; Quoted 323
Sforza Castle, Milan, Italy **319**
Shackleton, Sir Ernest Henry 244, 250
Shackleton, Keith 244, 250, **250;** Painting by **250**
Shadick, Larry **195**
Shale formations: Energy resources trapped by 569, 577, cutaway painting **569**
Sharks: Jamaica 755
Shasta Lake (reservoir), Calif.: Drought-stricken 814-815
Shaw, R. R. 213
Sheep camp: Yugoslavia **664-665,** 676, 679
Shelter Cove, Calif. 336
Shepherd, Isaiah 544
Shepherd, Victoria 544
Sherman, Amelia **58**
Shikoku (island), Japan 831, 834, **838, 839,** 840, 842, 848
Shimonoseki, Japan: Fish market 851, 854; Sea near **836-837,** 854
Shimonoseki Strait, Japan **832-833**
Shinto 831, 855; Priest 855, **860**
Shipbuilding: Colonial America 735; Japan 842, shipyards **832-833,** 834, workers **835**
Shipping: Hamburg, West Germany **164-165,** 168
Ships: Japan **832-833,** 834, **836-837,** 842; ***History Salvaged From the Sea.*** Dec. supplement; Sinking ships, rats and 87; *see also* Shipwrecks
Shipwrecks: California's north coast 338, 339; *Colonization and Trade in the New World.* Dec. supplement; ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767; South Georgia Island, South Atlantic **239**
Shodo Shima (island), Japan 856-857, 862
Shoes: Deerskin **370;** Medieval-style **481;** Ship's cargo **764,** 767
Shrimp: *sushi* platter **840-841**
Shrines: Japan 831, 855, 856-857, 860, torii entrance **863**
Shumaker, Larry **445**
Siberia, U.S.S.R. 258, 260, 261, 263; Reindeer herd **268-269;** *see also* Yakutsk
Side (ancient city), Asia Minor 117
Siemens (electrical company); Munich, West Germany 168-169
Sierra Club 347
Sierra Nevada (mountains), Calif.: Drought (1977) 809, 811, **817;** Snowfall, normal **816**
Signy Island, South Orkney Islands: Petrels 251, 254
Sigurdsson, Ingimar 577
Sigurdsson, Peter 787
Silt, glacial 184, 186
Silva, Manoel da Redenção e 692
Silver: Medal **749;** Salvaged **740, 741, 752,** 755, 761, gilded **740, 766;** Trade **738-739,** 741
Silver Bank (Ambrosia Bank), Hispaniola 753, 755
Simonson, Lee 343, 347
Sincock, John **588**
Singer, Günter 166, 168
Sirmans, Allen 21, 25
Skagit County, Wash.: Nuclear plant concern 45
Skagit River, Wash.: ***Our Wild and Scenic Rivers: The Skagit.*** By David S. Boyer. July, 38-45
Skate (fish): Galapagos Rift **449**
Skulimowski, Mieczyslaw 399, 401
Skully, Richard P. 224
Skum, Mikkel **369,** 371, 376, 378
Skyscrapers: Nairobi, Kenya **402-403**
Slave trade: New World 724, 727, **730-731,** 755
Slavery: Cumberland Island, Ga. 655
Sleds, transport: Eskimos 624, **629,** 633, 635
Sleigh, horse-drawn: Turkey **103**
Slezak, Mike 387
Slipware: Port Royal, Jamaica **759**
Sloniker, Gene 45
Slovak National Uprising, Bridge of the, Bratislava, Czechoslovakia **476**
Smith, Jedediah 351
Smith, Morton 572
Smith, Richard 33, 36
Smithsonian Institution, Washington, D. C. 727, 767
Snake River, Minn.: Reconstructed trading post 30, 32
Snakes: Cumberland Island, Ga. 649, 652, 661; Python, Indian **74**
"sniffer" **156**
Snow petrels 251, 254
Snowfall (Winter 1976-77) **799,** 804, 806, **806,** 807, 809, **810-811, 815, 817;** Anomalies in 804, 807, 809, 810-811, 813, **817**
Snowmobiles: Eskimos 624, 628, **629,** 633, 635, 636, 639, 642; Reindeer Lapps 364, 371, **374,** 376, **378**
Soapstone carvings: Chess figures 636, **642-643**
Social Democrat party: West Germany 178, 179, 180
"social market" system: West Germany 177-178
Soderlind, Paul 229
Soldiers: Bulgarian 481, **485;** Soviet **262,** 269, **469,** World War II

UMI

memorial to 466, **469**
Solomon, Izler **492**
Solvay, N.Y.: Saltworks 387
Sonoma County, Calif.: Geothermal power plant **566-567**, 572-573
Sonoran Desert, Ariz.: ***Arizona's Suburbs of the Sun.*** By David Jeffery. Oct., 486-517
Sonstelie, Lawrence 18
Sooty albatrosses 251
Sorcery: Gimi people **140**, 141, trials for suspected practitioners 126, **140-143**, 141, 145
Sosúa, Dominican Republic 549; Beach 558, 560; Dairy and cattle industry 549, 560; Jewish community 560; Sewage-disposal plants 558; Tourism 558
South America: Slave auctions 731; Treasures **733, 736,** 738; *see also* Brazil
South Dakota: Drought 799, 809, 813, 826
South Georgia Island, South Atlantic 242, 243; Albatrosses 251; Penguins **239, 240-241, 245,** 250-251; Seals 244, **245**, 251; Shipwreck **239**; Whaling station, abandoned 239, 243
South Orkney Islands, South Atlantic: Petrels 251, 254
Southeast (region), U. S.: Drought 799, map 808; Winter 1976-77 809, Florida **798**, 804, 809, 810-811
Southern Adriatic Plan: Yugoslavia 679
Southern fur seals **245**
Southwest (region), U. S.: ***Surprise and Challenge Amid Sere Beauty.*** Oct. supplement; *see also* Arizona
The Soviet Union Is My Beat. By Dean Conger. Aug., 256-269
Soy sauce: Japan 857, 862
Spain: Megaliths 616-617, 621; New World 542, 544, 553, 555, 561, 649, *Colonization and Trade in the New World* and ***History Salvaged From the Sea.*** Dec. supplement, ***Reach for the New World.*** By Mendel Peterson. Dec., 724-767
Spanish: Arizona 490, 491; Georgia 649; Suwannee River 28
Spar, Floyd **510**
Spas: Japan 848, 856
Spearfishing **634-635**, 644
Spethmann, Dieter 172
Spiders: Amber inclusions **427, 430**
Spinning wheel **581B**
Spoons: Salvaged 735, **740**
Sproat, David 589, 590, **613**
Spruce trees: Glacier-buried 204, stump **186**; Noatak Basin 59
Squash, giant: Yugoslavia **662**
Squid: Antarctic Regions 244, 251; Japan 834, **840-841**, 854
Stafford, Robert 655
Stafford Plantation, Cumberland Island, Ga. 655, 660
Stanfield, James L., photographer: ***Japan's Amazing Inland Sea.*** Dec., 830-863; ***The Rat, Lapdog of the Devil.*** July, 60-87
Stanić, Vojislav and Nada 682; Art by **678**, 682
Stanković, Branko 474-475
Stapleton Airport, Denver, Colo.: Crash 222
Starbird, Ethel A.: ***Kauai, the Island That's Still Hawaii.*** Nov., 584-613
Starfish: Galapagos Rift **444**
Stari Bar, Yugoslavia 679
Steam power *see* Geothermal energy
Steel industry: Japan 833, 834, 842, 848; West Germany **152-153, 156-157,** 171-172
Stefánsson, Vilhjálmur 635
Stegner, Wallace: Quoted 2
Steiner, Wesley 503
Stephen Foster Center, White Springs, Fla. 20
Still Eskimo, Still Free: The Inuit of Umingmaktok. By Yva Momatiuk and John Eastcott. Nov., 624-647
Stockton, Charles W. 823
Stöger, Heinrich 465
Stokes, A. W. 78
Stone carving: Yugoslavia **678**
Storks: Pantanal (swamp), Brazil 693, **698-699**
Storm petrel **252**
Stout, Cliff 219, **221**
Strainer: Port Royal, Jamaica **760**
Strauss, Johann 457, 466
Streymoy, Faeroe Islands 773, 777
Strikes: West Germany 158-159, 161, 162, 163, 165
Stroeh, J. Dietrich 814
Stuttgart, West Germany: Automobile plant near 168; Foreign workers 152
Submersibles *see Alvin*
Suess, Hans E. 616, 621
Sugar: Dominican Republic 541, 542, 545, 553, 556, 561, 563; Price drop 541, 545, 548
Sugar beets **170**
Sugar growing: Dominican Republic 546, **548-549**; Hawaii **584-585,** 589, **598-599,** decline 590, 596, 605, plantations 584, 608-609, **610-611,** rat damage 72, 74, tycoons 596, 609, workers 584, **590,** 596
Suleiman I, Sultan (Ottoman Empire) 472
Sulina, Romania 484, 485
Sultan, Shahbano Maimoona 284, 286
Sumangil, Jess 69
Sumer, ancient: Historical records 616, 617
Sun City, Ariz. 498; Central Arizona Project near **508-509**; Retirement community, largest 510
Sundew (insectivorous plant) 657
Sundials, portable **747**
Sunspot cycle: Droughts and 823
Suosjavrre, Norway 371, 376, 378
Supek, Štefan 473
Superior, Lake, U. S.–Canada: Formation of 204
Superior National Forest, Minn.: Wolves **522,** 526, moose kill **532, 533**
Surfing: Pacific Ocean **345**
Surprise and Challenge Amid Sere Beauty (Southwest, U. S.). Oct. supplement
Survey of Natural Resources (Brazil) 692
Suwannee Basin, Ga.-Fla.: Stream **26**; Strip mining 27
Suwannee River, Ga.-Fla.: ***Our Wild and Scenic Rivers: The Suwannee.*** By Jack and Anne Rudloe. July, 20-29
Sveti Stefan, Yugoslavia 679
Svishtov, Bulgaria: Military ceremony 481, **485**
Swaback, Vernon 495
Swan Mountain, Italy 303
Swartz, William F. 234
Swem, Ted 55, 57, 59
Swinomish Indians: Fishing **44**
Sword: Handguard **766**
Sylt (island), West Germany **168-169**
Syracuse, N.Y.: Salt: Deposits 387, warehouse **389**
Le Système International d'Unites see Metric system
Széchenyi thermal baths, Budapest, Hungary **474-475**

T

Tabatinga, Brazil: Airport 708; Port 710
Tadamori, Taira 837
Tainos 544-545, 564
Tairona people: Colombia: Artifacts **736**
Taliesin West, Scottsdale, Ariz. **502**
Tamanduas (anteaters): Brazil **709,** 713
Tank (vehicle): Leonardo da Vinci sketches **312-313**
Tankards: Port Royal, Jamaica **760**
Tanning, oak-bark: *Brendan* 774, 775, 782
Tapajós (river), Brazil 692, 713; Gold 684, 686, 688, prospectors 684, **684-687,** 688, 691
Tara River, Yugoslavia 666, 679
Taro: Kauai **590-591,** 605
Tarsus, Turkey 117
Tarxien, Malta: Temples 616, 617, 621, spiral designs 616, 617, **619,** 621
Tashkent, U.S.S.R.: Potato market **256-257**
Tateishi, Hiroshi 608
Tavera Dam, Dominican Republic 558
Taylor, Kim **83**
Taylor, Lolita 36-37
Taylor Camp, Kauai **608-609**
Teijin, Ltd.: Matsuyama, Japan 842

Teletskoye, Lake, U.S.S.R.: Picnic **258**
Television series, NGS 439
Telle, Hans 82
Tempe, Ariz.: Big Surf **488-489**
Temperature: Celsius 289, 291, **294**; Conversion table 292; Fahrenheit **294**
Temples: Ancient: Malta 615, 616, **618, 619**; Hindu: India **70, 71**, rats fed in **71**
Tenerife, Canary Islands: Aircraft collision (1977) 214, **228-229**
Tennis ranch: Phoenix, Ariz. **486-487**
Termite: Amber inclusion **427**
Tetoron (synthetic fiber): Production 842
Texas: Drought losses **824**; Dust storms 813, 824, dunes 813, **825**; *see also* Rio Grande
Texas Cowboy Club, West Berlin **176-177**
Texcoco, Lake, Mexico: Salt pan near **394**
Thiery, Hans 465
Thomas, Frank 347
Thomson, Robert **226**
Thull, Bill, and family **191**
Thyssen steel complex, Duisburg, West Germany **152-153, 156-157**, 172, 177
Tikhak (Eskimo) 629, 633, **635**, 639, 642, 643, 644, **646-647**, 647; Wife 633, **647**
Timber *see* Lumber industry
Timber farms: Brazil 713, **714-715**, 716
Timber wolf *see* Gray wolf
Timbuktu, Mali: Salt trade 390
Tinarelli, Franco: Flying machine invented by **308**
Tire repair shop: Cacoal, Brazil **707**
Tito, Josip Broz 666, 673
Titograd, Yugoslavia 666-667, **667**, 682
Tobacco: Dominican Republic 541, 542, 557-558, **564-565**; Shipwreck salvage 734
Tobacco box, brass **754**
Todd, Webster B., Jr. 209, 229
Toh, Mrs. Kazuko **852**
Tolworth, England: Rat-control laboratory 82, **83**, 84
Tomales Bay, Calif. **354-355**
Tomatoes: Geothermal hothouse **573**; History 741; Salt-damaged plants **820, 821**
Tombs, ancient: Brittany, France 616, 617, 621; Ireland **619**; Orkney Islands 617, **622-623**, 623; Spain 616-617, 621
Tomich, P. Quentin 74
Ton: Long 287; Metric 287, 291, 293; Register 287; Short 287; Wheat 287
Tools, ancient: Copper **620**, 621
Tordesillas, Treaty of 728
Torii: Japanese shrine entrance **863**
Toulouse, France: Airport **233**
Trade: *Colonization and Trade in the New World*. Dec. supplement; ***Reach for the New World***. By Mendel Peterson. Dec., 724-767
Trade fair: Portobelo, Panama 735, **738-739**
Trade unions: West Germany 159, 161, 162, **162-163**, 172
Trading post, reconstructed: Snake River, Minn. 30, 32
Trailers, camping **334-335**
Trails *see* Ice Age Trail
Trains: Japan 831, 862; Transrapid **154**; Trans-Siberian Railroad **262-263**; Van Beethoven express 158; Yugoslavia 666, **675**, 679
Trans-Amazon Highway, Brazil 700; Homesteaders **702**, 702-703, 711, 716, 718
Transrapid train: West Germany **154**
Trans-Siberian Railroad **262-263**
Trans World Airlines 225; Automated landings 234
Trapping: Flathead Basin 17, 18; St. Croix Basin 30, 32, 36; Suwannee River **24**, 29; Wisconsin 189
Trautman, Gerald 498, 503
Treasure, sunken: ***History Salvaged From the Sea***. Dec. supplement; ***Reach for the New World***. By Mendel Peterson. Dec., 724-767
Treaty of the Meter (1875): Paris 290
Treaty of Tordesillas 728
Trebešica tunnel, Yugoslavia 679
Tree-ring dating: Weather cycles, confirms 814, 823
Treehouse: Arcata, Calif. **350**
Trees *see* Bristlecone pines; Redwoods; *and* Lumber industry
Trepáč, Vendelin 466
Trinidad, Calif.: Pacific Ocean shore near **332-333**; Seismic wave (1913) 342
TriStar (jet): Landings **206-208**, cover ill., missed approach 218
Trombetas River, Brazil: Bauxite 718
Troy (site of), Turkey 104
Trujillo, Rafael 538, 552-553, 556, 564; Assassination 538, 552, 553, 564, monument commemorating 553
Trujillo, Pico *see* Duarte, Pico
Trumpeter: San Cristóbal, Dominican Republic **539**
Trussardi, Vincenzo **308**
Tsurumi, Yoshiaki and Kinue 834
Tuba player: Mayville, Wis. **190**
Tube worms, giant: Galapagos Rift **440-441**, 449
"tubing": Ichetucknee River, Fla. **28-29**
Tucker, Teddy 733-734, 735, 743, 744
Tucson, Ariz.: ***Arizona's Suburbs of the Sun***. By David Jeffery. Oct., 486-517
Founding 491
Growth 495, 512, 514, 515, 517
Mexican-Americans 517
Newcomers 517
Night scene **500**
Pollution 515, 517
Suburbs 496, 517
Water supply problem 500, 503, 512, 517; Farmland bought for reservoirs **500**, 512
Tug Hill, N.Y.: Winter 1976-77 807
Tully, N.Y.: Salt deposits 387
Tuna: Japan **840-841**, 854
Tunnels: Yugoslavia **675**, 679
Turboclair system: Orly Airport, Paris, France **224**, control room **225**
Turkey: Cross Fire at an Ancient Crossroads. By Robert Paul Jordan. July, 88-123
Archeological sites 104, **114-115**, 117, 123
Army 91, 120; Border patrols 100, 104; Political intervention 99, 120; Soldier **120**; Third Army 113; Veteran **121**
Capital *see* Ankara
Earthquakes 115, 117
Economy 91, 99; Unemployment 99, 100, 110, 111
Education 88, 97, 99, 110, 113; Literacy rate 88; Students **89, 97**
Exports 107, 113
Facts and figures 91
Farming 99, 100, 104, 106-107; Crops 100, 104, **112, 113**, 115; Farms **106-107**; Methods 99, 104
Flag **91**
Government 99; Overthrown 97
History 94, 99, 108, 110, 114, 115, 117; Ancient peoples 91, 94, 98, 104, 114; Christianity 93, 94, 106, 108, 115; Ottoman Empire 91, 94; Republic established 88, 90-91, 97; Roman Empire 94, 114, 117
Industry 99, 113, 115, 117
Livestock 91, 99, 100, **100**, 107
Map 90-91
Muslim influence 90, 91, 98, 104, 110
Opium poppies **112**; Legal growing areas (map) 90
Population 91, 99, 102; Minority groups 94, 98, 100
Smuggling 91, 100, 104
Sports: *cirit* **95**
Transportation 100, **102-103**, 110-111, 114, **122-123**
Turks: Baths built by 472, 475; Bulgaria, occupation of 483; West Germany 152, 177, **178-179**; Yugoslavia 663, 668, 670, 673, 676, 679, 681, 682
Turtles, loggerhead: Cumberland Island, Ga. 650, 657, 660
Twain, Mark: Quoted 612
Two Creeks Buried Forest, Wis. 204; Spruce stump, preglacial **186**
Typhoons: Japan 854

Tyumen, U.S.S.R.: Cross-country ski race 261; Restaurant 260-261

U

Ubaigubi, Papua New Guinea: ***Fertility Rites and Sorcery in a New Guinea Village***. By Gillian Gillison. July, 124-146
Ubavin, Spasoje 473
Ulcinj, Yugoslavia 679
Ulm, West Germany: Cathedral 458; The Crooked House **458, 459**
Ultraviolet lamp: Russian nursery school **267**
Umingmaktok settlement, Northwest Territories, Canada: ***Still Eskimo, Still Free: The Inuit of Umingmaktok***. By Yva Momatiuk and John Eastcott. Nov., 624-647
Underground Vaults and Storage Company, near Hutchinson, Kans.: Warehouse, world's largest 390
Unemployment: Winter 1976-77 802, 804, 805, 809
Union of Soviet Socialist Republics: Antarctic research station 254; Danube River: Border 483, commerce 461, 474, 483; ***Five Times to Yakutsk***. By Dean Conger. Aug., 256-269; Geothermal research and development 569, 577; Wolf management 523
Union Oil Company: Geothermal wells 572-573, 576
Union Town, Calif. *see* Arcata
Unions: Great Britain 161; West Germany 159, 161, 162, **162-163**, 172
United Airlines: Flight Training Center, Denver, Colo. 214
United States: Air carriers: Accidents 209, 213, 218-219, 221, 222, 232, deaths 209, 224; Dominican Republic: Aid to 538, 542, 545, business interests in 553, 556, 563, occupation of 538; ***Geothermal Energy: The Power of Letting Off Steam***. By Kenneth F. Weaver. Oct., 566-579; Metric system 289-290, conversion to 290, 293-294; Rats and rat control 63, **64-65, 69**, 72, 74, 78-79, **84-85**, 86; ***Surprise and Challenge Amid Sere Beauty*** (Southwest). Oct. supplement; *Visiting Our Past: America's Historylands* (new NGS book) 580-582; West Germany: Aid to 151, 155, military colony 152; ***The Year the Weather Went Wild***. By Thomas Y. Canby. Dec., 799-829; *see also* Arizona; Kauai; *and* Rivers, U. S.
U. S. Agency for International Development (AID): Rat-control programs 68, 72, 75
U. S. Air Line Pilots Association: "Decision Heights" 225, 234; Wind shear 222
U. S. Coast Guard: California's north coast 338-339, 342
U. S. Fish and Wildlife Service: Rat control 68, 72, **84-85**
U. S. Geological Survey: Geothermal-reserves study 570, 572, 576
U. S. Marines: Dominican Republic, occupation of 538
U. S. Metric Board 290
U. S. Navy: Hawaiian facility 591-592
U. S. Wildlife Damage Research Station, Hilo, Hawaii 72
University of Wisconsin 182, 188, 205; Paleontological specimens 199
Upper Webb Lake, Wis.: Condemnation of land 36
Urban problems: ***The Rat, Lapdog of the Devil***. By Thomas Y. Canby. July, 60-87
Usal Road, Calif. 338
Utah: Geothermal resources **570-571**, 576; ***Surprise and Challenge Amid Sere Beauty***. Oct. supplement; Wolves, captive **526-527**
Utting, Ashby 758, 761

V

Valkeapää, Nils-Aslak 374
Valley Bank Center, Phoenix, Ariz. **493**
Valorosi, John 815, 826, 828
Van Beethoven express 158
Van Hengel, John 490
Vasari, Giorgio 321, 325
Vasojević clan: Yugoslavia 673
Vázquez de Espinosa, Antonio 734
Vellenga, Reta 865
Venables, Robert 755
Venetian empire: Yugoslavian remnants 666, 679, **680-681**
Venice, Italy: Plague 86
Vents, hydrothermal 441, 443, **446-447**, 449 *see also* Geothermal energy
Veracruz, Mexico 735, 742, 744
Verde River, Ariz. 507
Verrocchio, Andrea del 304, 310, 313; Painting by **304**, 310
Veruša (river), valley of, Yugoslavia 670
Victorino, Gary 589
Vienna, Austria 455, 465-466; Dancing school **464-465**; Stadtpark 465, 466
Villa, Pancho 51
Villa Melzi (mansion), Vaprio d'Adda, Italy: Interior **303**
Villas Boas, Orlando 700
Villas Boas brothers 700, 705
Vinci, Leonardo da *see* Leonardo da Vinci
Vinci, Italy **298-299**; Leonardo's birthplace 299, 307
Vineyards: San Joaquin Valley, Calif. 815, 826, **828**
"Virgin and Child with St. Anne" (Leonardo da Vinci): Preliminary drawing 321, **327**
Virgin Islands, U. S.: Purchase 728
"Virgin of the Rocks" (Leonardo da Vinci) 317
"Virgin of the Rocks" (Leonardo da Vinci and Ambrogio de Predis) 326
Virpazar, Yugoslavia 682
Vodka: U.S.S.R. **258**, 267
Vojvodina region, Yugoslavia: Ethnic diversity 472-473
Volkswagen (car): New models **158-159**, 159, 162; Origin 161
Volkswagen (company), West Germany: Economic crisis 158, 161-162; Factory **158-159**
Von der Lippe, George 347
The Voyage of* Brendan—*Did Irish Monks Discover America? By Timothy Severin. Dec., 770-797
Voyage of Saint Brendan the Abbot (saga) **768**, 769, 772-773, 777, 778; Earliest version 774
Voyageurs 30, 32; Cargo 767

W

W. F. Hall Printing Company, Corinth, Miss.: NATIONAL GEOGRAPHIC presses 583
Wachau (region), Austria **454**, 465
Waddell, Jack 222, 224
Wagner, A. James 823
Wagner, Kip 735
Waialeale (volcano), Kauai 589, 592, **597**
Wailua Heights, Kauai 612
Wailua River, Kauai 606; Canoe race from **586-587**
Waimea Bay, Kauai: Cook's landing 592, 598
Waimea Canyon, Kauai 592, **600-601**
Waipahee Slide, Kauai 612
Wallace, Jerome 611
Wandering albatrosses 243, 251; Courting dance **242-243**, 251
Warrior: Gold figure **736**
Wasatch Range, Utah: Hot springs **570-571**
Washington (state): Indians 45, fishing rights 39, 45; *see also* Skagit River, *outlined*
Washington, D. C.: Airport: Landings **210-211**
Watch, gold **746**
Water barrels: Brazil **710-711**
Water jug, earthenware **761**
Water pipit **786**
Water pollution: Danube River 455, 457, 460, 475; Japan 834, 847, 848; U. S. rivers 27, 45
Water Walkers (toys) **320**
Waterfalls: Kauai 592, **597, 604**, 606; Oregon **4-5**; Yellowstone National Park, U.S. **3**, cover ill.; Yugoslavia 674
Watertown, N.Y.: Winter 1976-77 807

Wax dip: Leprosy patients **852**
Weather: United States: ***The Year the Weather Went Wild.*** By Thomas Y. Canby. Dec., 799-829
Maps 800, 801, 808 *see also* Satellite observation, *below*
Prediction, long-range 821, 823, 828
Pressure systems 800, 801, 804, 809, 823; Diagrams **800, 801**
Records, 1977 799, 805, 806, 807, 808, 809, 811
Satellite observation 809; Images **810-811, 813, 816, 817,** 823
Sea-surface temperatures: Key to weather (theory) 800, 801, 804, 823, 828, diagrams **800, 801**
Seasons, fluctuations of 823
Tree-ring clues to 823
Variability increasing: Possible causes 823
Wind movements 800, 801, 804, 809, 823; Diagrams **800, 801**
Winter pattern, normal 804; Diagram **800**
see also Drought *and* Winter 1976-77, *outlined*
Weaver, Kenneth F.: ***Geothermal Energy: The Power of Letting Off Steam.*** Oct., 566-579; ***How Soon Will We Measure in Metric?*** Aug., 287-294
Weaver caste: Nimkhera, India **272,** 274
Weddings: Czechoslovakia **471;** Gimi people 128-129, 132, **132-135,** 137, 138-139; India 274, **275-276,** 276, 280-282; Romania 485; Yugoslavian bride 672
Weeden, Bob 55
Wehrheim, John 591
Wells, hydrothermal 568, 569, 572-573, 576, 577, 578, 579
Wells, irrigation 814, 826, 828; More and deeper (1977) 815, 817, 819, **828**
Welsh, Frank 503, 507
Wentzel, Volkmar, photographer: ***Salt—The Essence of Life.*** Sept., 381-401
West (region), U. S.: Geothermal resources 568, **570-571,** 575-576, 577, 578, power plants **566-567,** 572-573; ***The Year the Weather Went Wild.*** By Thomas Y. Canby. Dec., 799-829
West Germany: Continuing Miracle. By John J. Putman. Aug., 149-181
West Indies *see* Dominican Republic
Westpoint Island, Falkland Islands: Albatrosses 242; Owner 242; Penguins 237, 239, 242
Wetlands: ***On the Trail of Wisconsin's Ice Age.*** By Anne LaBastille. Aug., 182-205
Weymann, Barbara 514, 517
Whales: Blue whales **722;** *Brendan* encountered 773, 778, 787, 789, 790
Whaling: Antarctic Regions 239, 243, 244
Wheeler, Robert C. 767
Where Can the Wolf Survive? By L. David Mech. Oct., 518-537
White, Donald E. 570
White Springs, Fla. 27, 28; Stephen Foster Center 20
White-tailed deer: Cumberland Island, Ga. 650, 652, 656
White wolf: Canada 518
Who Discovered America? A New Look At an Old Question. The Editor. Dec., 769
Whooping cranes 199, **202**
"Wide Belts" *see* Cintas Largas
Wieliczka, Poland: Salt mine **392, 393,** 398-399, sanatorium 392, 399, 401
Wiesnet, Donald R. 823
Wilcox, George N. 609
Wilcox, Mabel 608-609
Wild and Scenic Rivers *see* National Wild and Scenic Rivers
Wild rice: St. Croix Basin 31, 36, 37; Wolf River, Wis. **194-195**
Wildlife: Africa *see* Giraffes; Antarctic Regions *see* Penguins; United States: Flathead River 13, **13,** 14, 17, 18, Noatak River 54, 55, **56,** 57, **57,** 59, Rio Grande 47-48, St. Croix River 33, 36, **37,** Suwannee River 21, 24, 25, 27, Winter 1976-77 807, **815**
Wilke, Bob 742
Williams, Don **824**
Williams, John 507, **509**
Willis, Eric H. 575
Willows: Japan **856-857**
Wilson's storm petrel **244**
Winchester (shipwreck) 755, 758; Salvage **747, 762**
Wind shear: Air-safety hazard 218, 219, 221, 222, 232; Diagram **220**
Wind surfer: Kiel Bay **168**
Windlass **306**
Winds: Dust storms 813, **824-825;** Erosion 813, **824;** Jet streams diverted (1976-77) 800, 801, 804, 809, 823, diagrams **800, 801;** Westerlies 800, 801, 804
Wine bottles: Metric sizes 293; Port Royal, Jamaica **760**
Wine cooperative: Breisach, West Germany **167**
Wine making: Yugoslavia 682, **683**
Wineglass stems: Port Royal, Jamaica **758-759**
Winter 1976-77: United States: ***The Year the Weather Went Wild.*** By Thomas Y. Canby. Dec., 799-829
Abnormal conditions, causes of 800, 801, 804, 809, 823; Illustrated **800, 801**
Agricultural losses 809
Cost 805, 806, 809, 813; Fuel bills 804, 809, 815; Property losses **805,** 806, 807, 824
Economic growth, cost in 809
Emergency relief work 806-807
Freezes, record-setting 799; Map 808; Temperatures 807, 808, 809
Fuel shortages 799, 804, 807, 808, 809, 815, 828
Industry; businesses closed 804, 807, 809
January conditions, abnormal **801**
Livestock lost 824
Maps 800, 801, 808
November conditions, abnormal **800**
Precipitation, subnormal 801, 808, 809, 813, 814, **817,** 819; Map 808
Predicted 809, 821, 823
Snow belt, anomalies in 804, 807, 809, 810-811, 813, **817**
Snow failure 809, 811, 813, **817**
Snowfall **799,** 804, 806, **806,** 807, 809, **810-811, 815;** Blizzards 804, 806, 824; "lake effect" 807; Records 806, 807, 809, 48-state snowfall (January 31) 809, **810-811**
Unemployment 802, 804, 805, 809
Waterways, frozen **802-805,** 806, 807, 811, **812, 813**
Wildlife 807; Zoo animals **815**
Winter 1917-18, compared to 808, 823
Wisconsin: ***On the Trail of Wisconsin's Ice Age.*** By Anne LaBastille. Aug., 182-205
Economy 189, 191, 193, 194, 199, 201, 203
Farming: Cranberry production 189, 194; Dairy farming **191,** 193; Fruit orchards 204; Grain crops 203, 205; Potato farming 188-189
Forests **186-187, 194;** Preglacial 186, 204, stump **186;** Tree types 193, 197
Glacial land forms 182, **183, 185, 187,** 188-189, 193, 199, **200-201,** 203
Human habitation, first 199
Ice Age **185,** 199; Benefits of 188, 189, 193, 194, 199, 201, 203, 204, 205
Immigrants (1840's) 191, 193
Lakes **182-183,** 184, **187,** 188, 189, 193, 196, 199, **204-205;** Shorelines, Great Lakes 204
Lumber industry 193
Map 184
Paper production 193
Plant life **186,** 188, 189, 193, **194-195** *see also* Forests, *above*
Preserves 182, 184, **186,** 188, 189, 193, 196, 199, **200-203,** 203, 204, 205; Map 184
Tree harvesting 193
Wetlands 184, 188, 189, **194-195,** 197, 199, 203; Burning of, accidental 189; Draining of 189, 194, 203
Wild-rice harvesting **194-195**
Wildlife 188, 189, 197, 199, **202-203,** 203, 204; Ice Age **185,** 199
see also St. Croix River

Wisconsin Ice Sheet *see* Ice Age Trail
Wisconsin River, Wis. 196; Glacial rechanneling 199, 204
Wisconsin State Scientific Areas 188, **200-201**
Wojcik, Josef 465-466
Wolf-dogs 529, 536
Wolf River, Wis.: Wild rice **194-195**
Wolfsburg, West Germany: Volkswagen plant **158-159,** 161-162
Wolinsky, Cary, photographer: ***On the Trail of Wisconsin's Ice Age.*** Aug., 182-205
Wolves: ***Where Can the Wolf Survive?*** By L. David Mech. Oct., 518-537
Calls and displays 520, **526,** 529
Coloring 518, 520, 523
Control programs 520, 529; Extermination 520, 523; Proposed 533, 536
Distribution 520, 523; Map 523
Endangered species 523, 533
Enemy, man as 518, 520, 529, 533
Erroneous beliefs about 518, 520, 525, 529, 534, 536
Feeding schedule, erratic 518, 525, 530, 533; Fasting tolerance 525, 530
Females **522,** 529; Dominant female 529, 534, **535**
Humans, reactions to **528-529,** 529, 534
Hunting 518, 525, 534; Kills 525, **532, 533**
Livestock killing 520, 523, 533, 536
Loners, nomadic 526, 529, 530, 534
Males 529, 534; Pack leader 529, 530, 534
Mates, lifetime 534
Outcasts, social 530
Packs 525, 526, 529; Size 520, 523, 525, 529; Structure 526, 529-530, 534
Population, present-day 523
Prey 518, 520, 525, **530-533,** 534, 536
Protected legally 523, 533, 536
Pups **524,** 534; Care of, shared by pack 525, 534; "dominance hierarchy" 529
Reintroduction controversy 523
Species 520, 523
Study of 520, 523, 525, 530, 534, 536; Tracking methods 520, 523, 525-526, 536
Survival of fittest 530
Territory 525, 526, 529; "rendezvous sites" 534
Weight 520, 526
Women's Christian Temperance Union 354
Wong, Tamara 592
Wood carvers: California **342;** Yugoslavia 674-675, **678**
Woolfitt, Adam, photographer: ***Ancient Europe Is Older Than We Thought.*** Nov., 615-623
World Health Organization: Plague-control effort 86
World War II: Eastern Europe 455, 466, 469, 476, 484; Germany 149, 151, 154, 155, 169, 458; Japan 842; aftermath 832, 848, 855; atomic bombing of 842, 844, 845, 846, 847; Poland 399; U.S.S.R.: Manpower losses 264; Yugoslavia 666, 670, 673, 682
Worms: Galapagos Rift **440-441,** 449, **449**
Wright, David: House **358**
Wright, Frank Lloyd 503
Wright, Olgivanna **502**
Wright-Patterson Air Force Base, Ohio: Air-safety research 232, 234

X

Xingu Indians 700
Xingu National Park, Brazil 700
Xingu River region, Brazil: Homesteaders 716, 718

Y

Yakovlev, Viktor 267
Yakutsk, U.S.S.R. 257, 263, 267; Construction workers **264**
Yalta, U.S.S.R.: Bather **265**
Yam vine: Leaf **596**
Yamato Plain, Japan 837
Yanık, Mehmet 110
Yanık, Mustafá 113
Yard (unit of measure) 287, 288, 294; Conversion table 292
Yavapai Indians 507, 510; Tribal elder 507, **509**
The Year the Weather Went Wild. By Thomas Y. Canby. Dec., 799-829
Yellow-thighed oo **588**
Yellowstone National Park, U. S.: Dry steam fields 573; Waterfalls **3,** cover ill.
Yellowtail: Japanese food **841,** 854
Yıldız, Şükrü 104
Yoshinaka, Mrs. **852**
Youde, James 814
Young, Gordon: ***Salt—The Essence of Life.*** Sept., 381-401
Yucatán Peninsula, Mexico: Shipwreck off: Cargo salvaged **732,** 735, **746**
Yugoslavia: Danube River, and region 455, 466, 472-476, **478-481;** *see also* Montenegro
Yukimura, JoAnn 592, **595**

Z

"Z" (mythical city), Brazil 691-692, 700
Zacharchuk, Walter 767
Zahl, Paul A. 295, 347; photographer: ***Amber, Golden Window on the Past.*** Sept., 423-435
Zamrzla, Ralph **193**
Zillmer, John 205
Zillmer, Ray 205
Zodiacs (rubber boats) **238, 246, 247,** 250, 251
Zucchet, Edvino 82

INDEXING STAFF

JOLENE M. BLOZIS *Chief*
MARTHA K. HIGHTOWER *Assistant Chief*
GEORGE I. BURNESTON
BARBARA L. KLEIN
ANNE K. McCAIN
BRIT A. PETERSON
JESSICA C. TAYLOR
VIRGINIA S. THOMPSON

UMI